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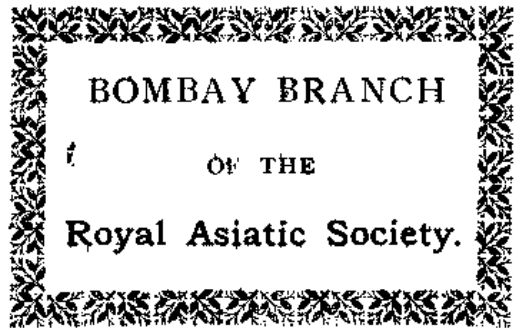

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VOYAGE OF DISCOVERY,

MADE UNDER THE ORDERS OF THE ADMIRALTY,

IN

HIS MAJESTY'S SHIPS

ISABELLA AND ALEXANDER

FOR THE PURPOSE OF

EXPLORING BAFFIN'S BAY,

AND INQUIRING INTO THE PROBABILITY OF A

NORTH-WEST PASSAGE.

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10458?

By JOHN ROSS, K. S. Captain Royal Navy.

LONDON:

JOHN MURRAY, ALBEMARLE-STREET.

1819.

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TO

THE RIGHT HONOURABLE VISCOUNT MELVILLE,

BARON DUNEIRA,

FIRST LORD OF THE ADMIRALTY, &c., &c., &c.

THIS WORK,

WITH HIS LORDSHIP's PERMISSION,

IS MOST RESPECTFULLY DEDICATED

BY HIS LORDSHIP'S

MOST OBEDIENT, AND VERY HUMBLE SERVANT,

JOHN ROSS.

INTRODUCTION.

THE following Narrative of the Voyage of Discovery made under my command, and pursuant to the orders of the Admiralty, can require little in the nature of an introduction. The causes in which it originated are as well known to the Public as they are to myself; and the discussions of different kinds to which it has given rise, are, probably, much more familiar to every one who may do me the honour to read this journal, than they are to the writer of it.

Few voyages of this nature have excited more general interest at their outset than the present. It would not be easy for me to add any thing to the innumerable articles on this subject that have appeared in the several public journals, which are in the hands of all classes of readers. My habits in literary composition are such, that I could not hope to put all these circumstances in a clearer point of view; and, as far

as they partake of a controversial nature, it is not my business to enter into the discussion.

My nautical education has taught me to act and not to question; to obey orders as far as possible, not to discuss probabilities, or examine philosophical or unphilosophical speculations.

If it were possible to condense, within such a space as these pages would admit, the various information formerly collected respecting the Polar Seas, and the objects of this voyage, I know not that my time, or my limited experience in writing, would permit it. That attempt is, at any rate, rendered unnecessary, by the works on this subject which have long been in the hands of every one, and are, doubtless, well known to all my readers. I allude to the writings of Daines Barrington, Colonel Beaufoy, and the more recent sketch of the Northern Voyages, published by my friend, Mr. Barrow.

I have here attempted nothing beyond the journal of a seaman. If I had done more, I might have done worse; as I could not have hoped to add much elegance to the composition, nor much entertainment to the matter of a narrative, which was not productive of much adventure. From the nature of the service, we were almost always at sea, and were thus cut off from the sources of variety that are only to be found by frequent communication with unknown or interesting shores.

If I have thus missed to give entertainment, I, however, trust, that I have diminished nothing from the utility of the statements to seamen, nor their authority to geographers. I also trust, as I believe myself, that the objects of the voyage have been, in every important point, accomplished; that I have proved the existence of a bay, from Disco to Cumberland Strait, and and set at rest for ever the question of a north-west passage in this direction.

In re-discovering Baffin's Bay, I have derived great additional pleasure from the reflection that I have placed in a fair light before the Public, the merits of a worthy and able Navigator; whose fate, like that of many others, it has not only been, to have lost, by a combination of untoward circumstances, the opportunity of acquiring during his life-time the fame he deserved; but, could he have lived to this period, to have seen his discoveries expunged from the records of geography, and the bay, with which his name is so fairly associated, treated as a phantom of the imagination.

The circumstances which immediately preceded this voyage, may be stated in a few words, and I have subjoined to them all those matters relating to the preparations and equipment, which are either useful or interesting; together with a copy (examined by the Secretary of the Admiralty) of the orders under which I was to act.

On the 11th of December, 1817, I received a letter, dated the 4th, from Sir George Hope, one of the Lords of the Admiralty, acquainting me, that two ships were to be sent out, to ascertain the existence or non-existence of a north-west passage; and desiring me to let him know, by return of post, whether my health was equal to the arduous service which must be expected on a voyage of this nature, and whether I should wish to undertake it; at the same time informing me, that I should be accompanied by a man of science, besides Greenland pilots, accustomed to navigate those seas. To this I returned for answer, that my health was perfectly re-established, and that I had no hesitation in undertaking the service, particularly with the promised assistance.

On the 16th I received orders from Sir George, to make the best of my way from Loch Ryan to Greenock, in the Driver (which ship I commanded), and, when superseded, to proceed to London; and that, in the mean time, they would be getting on with the ships which had been already selected.

I arrived in London on the 30th of December, and, having received directions, I visited the ships, and chose the Isabella for my own, as being the most proper ship for the senior officer; I was afterwards employed in planning the accommodations, and directing the various alterations which were necessary for the safety of the ships and comfort of the crews,

as well as in obtaining information from the different masters of the Greenland ships, and other persons who had been accustomed to navigate the icy seas.

On the 15th of January, 1818, the four ships were commissioned, *viz.*, the Isabella, 385 tons, and Alexander, 252⅛ tons, for the north-west; and the Dorothea, 382 tons, and the Trent, 249⅛ tons, for the polar expeditions; and the following officers subsequently received their appointments:

ISABELLA.

No. 1. John Ross, Captain, Senior Officer, and Commander of the Expedition.
2. William Robertson, (*b*) Lieutenant.
3. William Thom, Purser.
4. John Edwards, Surgeon.
5. C. J. Beverley, Assistant Surgeon.
6. A. M. Skene, Admiralty Midshipman.
7. J. C. Ross, ditto, ditto.
8. John Bushnan, Midshipman and Clerk.
9. Benjamin Lewis, Master and Greenland Pilot.
10. Thomas Wilcox, Mate, and ditto.

ALEXANDER.

No. 1. W. E. Parry, Lieutenant and Commander.
2. H. H. Hoppner, Lieutenant.
3. Ph. Bisson, Admiralty Midshipman.
4. John Nius, ditto, ditto.
5. Alex. Fisher, Assistant Surgeon.
6. W. H. Hooper, Purser.
7. John Allison, Master and Greenland Pilot.
8. Joseph Philips, Mate, and ditto.
9. James Halse, Clerk.

During the time the ships were in dock, they were frequently visited by the Comptroller and Commissioners of the Navy; every suggestion which was offered for the improvement of the plans were attended to, and no pains were spared by the officers of the yards, and men employed in their different departments. Mr. Lang, Assistant Surveyor, under whose particular direction the Isabella, Dorothea, and Trent, were repaired and fortified in the merchants' yards, and who made some important improvements, has furnished me with the following plan of the Isabella's construction, with the alterations and additions, to strengthen the ship against the pressure of the ice.

A Description of the Manner in which His Majesty's Ship Isabella was fitted, for a Voyage of Discovery to the Arctic Seas.

EXTERNALLY.

One strake of plank was taken out from the bottom, all fore and aft, at the heads and heels of the timbers composing her frame, to ascertain the condition of the ship; in lieu of which a strake of oak, seven inches thick, was introduced, with a rabbet on each edge, to make good the substance, and receive the doubling of the bottom, which was of oak, three inches thick; the original bottom was then well examined, caulked, and payed with the common mixture of pitch and tar; after which a coat of felt (a composition of animal hair and tar, in its properties both elastic and adhesive) was laid all over the whole surface, on which the doubling oak plank was brought, and secured through the original plank timbers, and inside lining of the ship, with bolts well clenched; this doubling extended up the counter abaft, as well as to the after part of the stern post, in which a fresh rabbet was formed, abaft the original one, within about four inches of the back, to receive the ends, or butts, of the said doubling.

The bows were still more strongly and substantially fortified prior to the doubling being brought on; pieces of timber were worked vertically next the stem, in the angle formed by that and the bow, to sharpen the form of the vessel; underneath these pieces a coat of felt was first laid, the pieces well caulked, and another coat of felt then laid thereon, to receive the doubling, which was worked from twelve to thirteen inches thick, at the fore ends, to fashion out and make a fair line with the front or fore part of the stem, the after ends were diminished to the thickness of the doubling of the bottom. On the fore ends of these thick strakes, after they had been caulked, iron plates, of about three quarters of an inch thick, were secured round their ends over the stem, to protect them from being injured by the ice; these plates were continued in close connexion all the way down the bow as low as the fore foot, or gripe, and the whole doubling well caulked and payed, similar to the mode practised with the original bottom.

The keel of the vessel was secured in the following manner: the original garboard strakes were taken off the bottom, and a thick strake of elm placed on each side of the keel in lie, with a coat of felt underneath, and bolted athwartships through the said keel, and likewise up and down through the floor timbers, and the bolts well clenched within board; in the outer

edges of the said strakes rabbets were formed to receive the doubling of the bottom, from which place the doubling extended up to within about three feet of the gunwale, terminating there in a thick strake of oak, rabbetted in like manner, and let home to the timbers of the topside, bolted through, and well clenched; the whole of the chains were secured, and guarded by thick pieces of timber, payed and bolted under the channel, covering the links, and thus protecting them from injury, or being carried away by the ice.

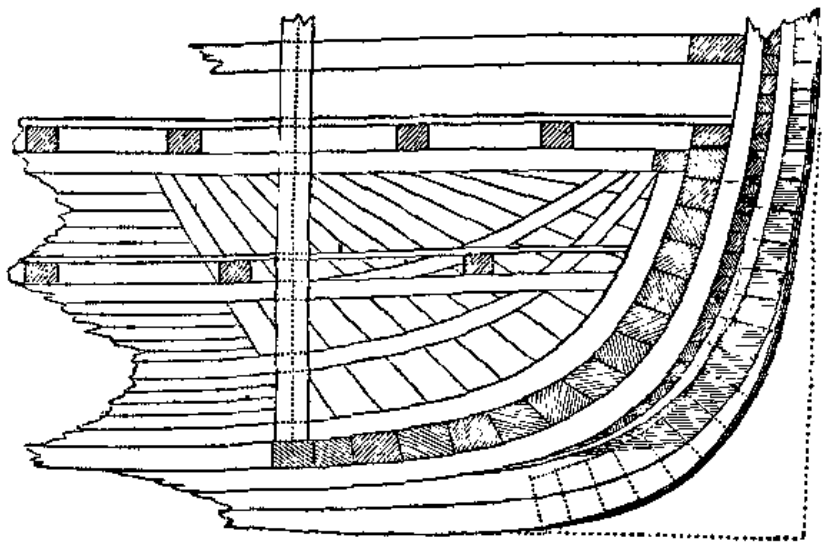
INTERNALLY.

Large shelf pieces were introduced all fore and aft under the beam-ends at the side, and dowelled or coaked up to the under side of the beams, and bolted in and out through the ship's side, as well as in an up-and-down direction through the said beams, and well clenched; pieces of a similar kind were introduced at various other parts of the ship on the ceiling, and dowelled thereto opposite the other thick strakes on the outside of the bottom, as before mentioned, which made good the thickness of the doubling on the bottom; and these strakes were well bolted through the ship's side to each other, and clenched within-board, thereby connecting the fabric, and

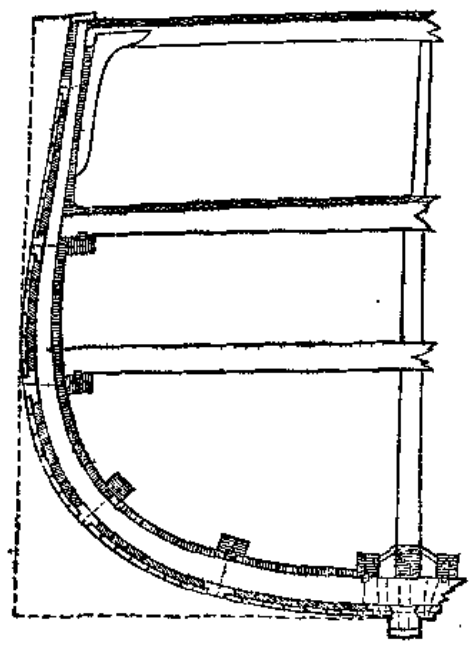
supporting the ship against the strain likely to occur by her being struck at the extremities by the ice; these pieces were continued from the bow to the stern, and united by breast hooks and crutches to strengthen those parts of the ship also; a tier of large beams were introduced about five feet below the lower deck to support the ship's sides against pressure, provided the ship should be squeezed, in the event of her being caught between two fields or floes of ice. The ceiling was taken off the bow, as far as aft the fore-step below, and several feet further aft at the lower-deck beam, in a diagonal direction; the openings between the timbers in wake thereof were then filled in solid, caulked and payed, on which surface were laid sixteen large breast-hooks (in lieu of the plank taken off), their sides well fayed close to each other, from the deck down to the fore-step, all across the bows, well bolted through the outside stuff, and clenched within-board; the ends of these hooks were likewise confined by the fore-part of the lower deck shelf-piece, which finished with a large hook over the others, and the same confining the fore ends of all the fore and aft thick strakes that were dowelled to the ceiling, as before mentioned; against this large breast-hook, shores were placed, and bolted under the beams, with carlings between the said beams; their under sides dowelled to the upper sides of the shores and bolted through, and clenched securely

to each other. The shores were placed in a direction as square as possible from the curve of the bow, as may be perceived by the sketch of the half-breadth plan of the lower-deck; shores were placed under the fore platform beams in like manner, and the whole most substantially secured. Hooks and ekings were placed in the bows above the lower deck hook, as shewn in the profile sketch. Various other works were performed, too many to enumerate, or fully explain; the fitting the bed-places of the officers and crew, in such a manner that they might be taken on shore with ease, and formed into a dwelling in case of shipwreck; the galley, and other fire-places, stoves, *&c.*, for airing the ship, with every convenience requisite for the voyage; mode of stowing the boats, davits, skids, and a roof, or covering of tilt over the ship's deck, in case of her being frozen fast in the ice, and obliged to remain a winter in that situation; spare rudder complete, stowed on board by the main-mast, and apparatus complete for Captain Pakenham's rudder, in the event of both rudders being lost; spare capstan, fitted abreast the starboard side of fore hatchway, to heave the ship a-head when in contact with the ice, *&c. &c.*

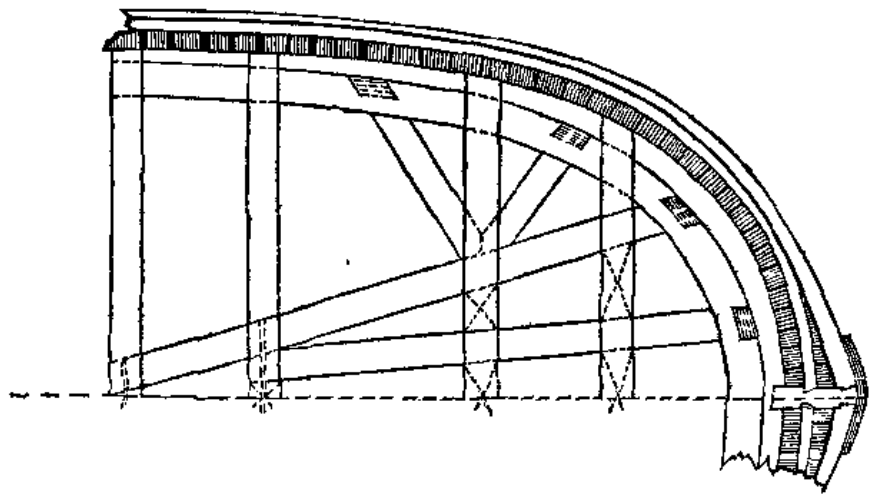
PROFILE OF THE BOW.



MIDSHIP SECTION.



HALF-BREADTH PLAN OF THE BOW.



The Alexander, Dorothea, and Trent, were similarly fitted.

On the 22d of February the ships came out of dock, were moored alongside the receiving ships at Deptford, where they embarked the necessaries, provisions, and stores, which had been in preparation for the voyage; a list of which, for the whole four ships, will be subjoined; and it will be seen that nothing was neglected which could be conducive to the health and comfort of those who volunteered to serve on this enterprise.

The following Establishment of officers and men for the four vessels, while employed on a voyage of discovery in the Arctic Regions, with the pay, per month, allowed to the officers and men, was finally settled.

ISABELLA.

		£	s	d
1	Captain	46	0	0
1	Lieutenant	18	8	0
1	Purser	7	13	4
1	Surgeon	39	4	0
1	Assistant Surgeon	18	4	0
2	Midshipmen (each)	6	2	8
1	Clerk	6	18	0
1	Master (merchant)	5	0	0
1	Mate (merchant)	4	0	0
1	Carpenter	6	0	0
1	Sailmaker	4	0	0
1	Cook	4	0	0
4	Leading Men (each)	3	15	0
31	Able Seamen (each)	3	0	0
1	Serjeant of Marines (colour)	5	4	2
1	Private ditto, 2d Class	1	18	4
4	Privates ditto, 3d Class	1	14	10

54 whole complement, per Admiralty order, 3d April, 1818; carried forward.

54 Brought forward.

SUPERNUMERARIES.

1	Captain Royal Artillery			
1	Serjeant ditto	£5	4	2
1	Esquimaux	3	0	0

57 total number on board.

ALEXANDER.

1	Lieutenant and Commander	£23	0	0
1	Lieutenant	18	8	0
1	Purser	7	13	4
1	Assistant Surgeon	18	4	0
2	Midshipmen (each)	6	2	8
1	Clerk	6	18	0
1	Master (merchant)	5	0	0
1	Mate (merchant)	4	0	0
1	Carpenter	6	0	0
1	Cook	4	0	0
1	Sailmaker	4	0	0
3	Leading Men (each)	3	15	0
17	Able Seamen (each)	3	0	0
1	Corporal Marines	2	10	10
4	Privates	1	14	10

37 whole complement, per Admiralty order, dated 3d April, 1818.

The officers were paid six and the seamen three months' pay, (besides river pay) in advance.

The following Books were supplied for the use of the officers, and quarter-deck petty officers, of His Majesty's ship Isabella:

1 Mackenzie's Travels in America, 4to.
2 Hearne's ditto, ditto, 4to.
3 Phipp's Voyage to the North Pole, 4to.
4 Ellis's ditto to Hudson's Bay, 8vo.
5 Vancouver's Voyage, 3 vols. 4to., and Atlas, folio.
6 Wallis, Carteret, and Cook's Voyages, 8 vols. 4to., with Atlas, folio.
7 Dampier's Voyages, 4 vols. 8vo.
8 Portlock's ditto, 4to.
9 Dixon's ditto, 4to.
10 Meare's ditto, 4to.
11 Coxe's Russian Discoveries, 8vo.
12 Barrington's Miscellanies, 4to.
13 Forster's Northern Discoveries, 2 vols. 4to.
14 Astronomical Observations of Wales and Bayly, 1772 to 1775, 4to.
15 Ditto of Cook, King, and Bayly, 1776 to 1780, 4to.
16 Ditto Byron, Wallis, Carteret, and Cook, from 1764 to 1771, 4to.

17 Broynart's Mineralogy, 2 vols. 8vo.
18 Bakewell's Geology, 8vo
19 Turton's Linnæus, 7 vols. 8vo.
20 Mackenzie's Iceland, 4to.
21 Falconer's Patagonia, 4to.
22 Cartwright's Labrador, 3 vols. 4to.
23 Turnbull's Voyage, 4to.
24 Crantz's History of Greenland, 2 vols. 8vo.
25 Burney's Collection of Voyages, 5 vols. 4to.

Thirty Bibles and sixty Testaments were also supplied by the Naval and Military Bible Society, for the four ships, and distributed accordingly.

A LIST OF INSTRUMENTS

For the Northern Expeditions.

ISABELLA.

SEVEN chronometers, three the property of Government, and four of individuals*. A clock, the pendulum of which, cast in one solid mass, vibrates on a blunt knife-edge, resting in longitudinal sections of hollow cylinders of agate.

A transit, by Jones.

A variation transit, by Dollond.

---

* The Alexander had also three Government Chronometers.

A dipping needle, the property of Henry Browne, Esq., made by Nairn.

A Dipping-needle, by Jones.

Ditto, by Troughton.

Ditto, by Lockwood.

A repeating circle, by Jones.

Altitude instrument, invented by Captain H. Kater, by Jones.

Hygrometer, ditto, ditto.

Hydrometer, by Jones.

Cyanameter, by ditto.

Ten thermometers, ditto
One self-registering ditto, ditto } Fahrenheit.

One barometer, with attached thermometer, by ditto.

One dip micrometer, invented by Dr. Wollaston, by ditto.

One dip sector, ditto, ditto, by ditto.

One macrometer, ditto, ditto, ditto.

Electrical apparatus, invented by Sir. H. Davy.

Apparatus for taking up sea-water from given depths.

One common mountain barometer and companion.

Ditto, invented by Sir H. Englefield.

One sextant, by Dollond.

One theodolite, by Jones.

Two anglometers, by ditto.

One beam compass, by ditto.

One brass scale, by ditto.

One Gunter ditto, by ditto.

One case drawing instruments, by ditto.
One protractor.
One artificial horizon and mercury.
One sympeisometer, invented by Aidey, Edinburgh.

COMPASSES.

Two Kater's ~~azimuth~~ compass.
One Walker ditto, ditto.
One Jenning's insulated steering compass.
Four Alexander of Leith's steering compass.
One Crow's ditto.
One ditto boat ditto.
Two Burt's patent binnacle and ditto.

OTHER INSTRUMENTS.

Bain's patent log.
Massey's ditto.
Jenning's ditto and glass.
Burt's buoy and knipper.
Trengrouse's apparatus for saving lives.
Nets for small fish and invertebrate animals.

AN ACCOUNT shewing the several Articles of WARM CLOTHING supplied to each of the following vessels, in addition to the established quantities of Slop Clothing.

SHIPS' NAMES.	Flushing Jackets.	Monkey Jackets.	Red Shirts.	Flushing Trowsers, Pairs.	Pairs of			Scarlet and Fawn Caps.	Milled Mitts, Pairs.	Fur Caps.	Comfortables.	Ancle Shoes, Pairs.
					Swan-skin Drawers.	Wadmill Hose.	Sea Boots.					
Isabella	50	50	100	100	50	100	50	50	100	50	50	50
Dorothea	50	50	100	100	50	100	50	50	100	50	50	50
Trent	35	35	70	70	35	70	35	35	70	35	35	35
Alexander ..	35	35	70	70	35	70	35	35	70	35	35	35
	170	170	340	340	170	340	170	170	340	170	170	170

One complete suit of the above warm clothing to be furnished to the seamen and marines, gratis; and the residue (if issued) to be charged, subject to the consideration of the Lords Commissioners of the Admiralty.

N. B. One complete suit was issued to each man on the 22d of September.

	Isabella,	*Dorothea,*	*Trent,*	*Alexander.*
Wolf-skin blanketing	60	60	40	40
Russian mats	1000	1000	800	800
Rifles complete	6	6	4	4
Seven barrell'd guns	6	6	4	4
Wall-pieces	6	6	4	4
Ball-cartridges for the above	3600	3600	2400	2400

Coverings of Maberly's painted canvass to each ship, sufficient to cover the decks fore and aft.

Whale lines	81 No.
Whale boats	5
Ice boat	1
Ice Anchors	24
Ice Saws	18
Ice Axes	12
Ice Spurs	10 Pairs
Ice pole hooks	4
Suits of sails, extra	2

Canvass sufficient for one new suit of sails for Isabella, with twine and needles in proportion.

No. 1	956 yards
2	175
4	669
5	178
6	330
7	1,222
8	522
Total canvass in yards	4,052

Ice poles	10	No.
Whale lances	24	
Knives, chopping	5	
Knives, blubber	5	
Harpoons, plain	6	
Harpoon's gun	1	
Deep-sea leads, 150 pounds weight	1	
Ditto, 100 ditto	1	
Ditto, 50 ditto	1	

The following stores were intended for building and repairing whale boats, in addition to the quantity supplied for twenty-six lunar months.

Board fir, one inch	612	Feet.
„ half inch	528	
„ three-quarters ditto	1,568	
Deal-wood flitches	10	No.
Stems	5	
Stern ports	5	
Keels, running	100	Feet.
Gun wales, ditto	310	
Cants	10	No.
Bollards	5	
Aprons	10	
Futtocks	64	

Knees	60	No.
Floors	51	
Bow and after timbers	36	
Thwart stuff running	88	Feet
Board, elm, one inch	196	
„ three-quarters ditto	511	
Ocham, white	56	Pounds.
Rosin	56	
Ring bolts	12	No.
Stem bands	12	
Nails, boat, 6 lbs.	20,000	No.
„ 8	10,000	
„ 10	10,000	
„ 4	4,000	
„ 3	4,000	
„ 2	4,000	
„ 22 oz.	4,000	

GUNNER'S STORES.

The ships were provided with ordnance, as follows:—

Isabella, carronades, No.	6	18	pounders.
Dorothea, ditto,	6	18	ditto.
Alexander, ditto,	4	12	ditto.
Trent, ditto,	4	12	ditto.

With powder and shot for three years, besides an extra allowance of fine powder, of six cases to each of the larger ships, and to all a proportion of small shot of various sizes.

Gunner's stores for three years, of every description; an armourer's forge in each of the large ships, and tool chest complete for armourer and carpenter.

The following were intended for presents to the natives on the West coast of Greenland and coast of America, *&c.*

Brass kettles	24	No.
Knives, forks, and cases	300	
Axes, felling, wedge	20	
Butchers' knives	150	
Flannel, red	150	Yards.
yellow	100	
blue	100	
Felling axes	10	No.
Looking-glasses	200	
Needles, Whitechapel	2,000	
Vermilion	15	Pounds.
Cutlasses	36	No.
Gun-flints	1,500	
Scarlet-milled caps	100	
Swords	14	

Thread, Red	20	Pounds
Pistols	16	No.
Scissors	30	Pairs.
Razors	40	No.
Coarse handkerchiefs	50	
Awls, shoemakers'	100	
Rifles	35	
Balls for ditto	2500	
Snuff	102	Pounds.
Earthen-ware	4	Cases
Soap	150	Pounds
Pikes	250	No.
Iron hoops	2	Cwt.
Gin (English)	129	Gallons.
Brandy	129½	
Various beads & Cowrie shells	13	Cases.
Umbrellas	40	No.

AN ACCOUNT shewing the Distribution of Sixty-nine Iron Provision-Tanks, furnished (for the better convenience of Stowage, to the several Vessels) employed on a Voyage of Discovery in the Arctic Regions.

	Iron Tanks.		Ft.	In.	
Isabella,	9	of	3	8	each tank contained 1008lbs. of biscuit.
„	9	of	3	0	each contained from 13 to 16 cwt. of flour.
„	4	of	3	0	each contained 23 bushels of pease.
Dorothea,	8	of	3	8	These tanks were directed to be filled with whatever denomination of provisions the respective commanders and pursers might think most advantageous for stowage.
„	14	of	3	0	
Trent	13	of	3	0	
Alexander,	12	of	3	0	

Isabella & Dorothea — One oven, of 2 feet, furnished by Storey for baking bread with little fuel.

AN ACCOUNT, shewing the Weekly Expense and Remains of Provisions on board His Majesty's Ship *Isabella*, between the 3d Day of *May*, and the 31st Day of *October*, 1818, being the Days on which she sailed from and returned to *Lerwick, Shetland.*

ISABELLA, 1818.	Bread, in Pounds	Gallons of			Pieces of		Pounds of				Bushels		Pounds of					Quarts of Vegetable Soup	Quarter Pints, Concentrated Soup	Essence of Spruce, Pots	Essence of Malt and Hops, Cases	Pounds of		Coals		Candles, Pounds	Total No. on Board.
		Spirits	Wine	Vinegar	Beef, 4 lbs	Pork, 2 lbs	Fresh Beef	Flour	Suet	Raisins	Pease	Oatmeal	Sugar	Cocoa	Lemon Juice	Tobacco	Preserved Meats					Butter	Cheese	Chaldrons	Bushels.		
Remained 2 May	19500	1890	780	325	1134 / 1134	5247	..	35000	1070	616	165	30	6400	2280	2304	2577	5200	1300	1300	144	53	134	111	88	..	2080	
EXPENSE																											
From 2 May to 9	310	18	..	..	29	..	141	..	..	..	..	..	33	16	..	..	..	..	..	..	..	68	111	..	12	10	56
„ 9 „ 16	220	18	6	..	12	..	232	86	23	...	..	..	32½	15¼	..	60	..	..	..	..	..	..	..	..	12	11	56
„ 16 „ 23	220	19	4	..	25	..	215	129	22	..	½	..	32	15½	..	..	..	..	..	..	..	..	..	..	13	9	56
„ 23 „ 30	353	22	7	..	34	..	118	133	22	..	½	..	32½	18	..	..	..	..	..	..	..	..	..	..	12	8	56
„ 30 May „ June 6	215	22	1	..	20	48	159	159	8	..	1½	..	32	18	..	..	..	..	..	..	..	..	..	..	12	8	56
„ 6 June „ 13	327	24	..	..	20	48	..	155	30	30	1½	..	35	17½	..	..	..	..	..	..	..	..	..	..	13	7	56
„ 13 „ 20	327	13	22	..	21	48	..	196	..	23	1½	..	32	17½	..	..	56	..	..	..	..	..	..	..	16	6	56
„ 20 „ 27	333	24	1	..	34	52	..	159	..	23	1½	..	32½	17½	..	..	..	..	..	..	..	..	..	..	15	4	56
„ 27 „ July 4	229	23	1	..	34	48	..	173	..	28	1½	..	41	21	..	92	..	..	..	..	..	..	..	..	10	4	56
„ 4 July „ 11	255	22	2	..	34	45	..	177	..	22	1½	..	42½	16	....	..	..	..	..	..	..	..	..	..	12	4	56
„ 11 „ 18	215	22	1	..	22	43	..	203	..	27	2	..	44½	17	....	..	..	..	..	..	..	..	..	..	16	5	56
„ 18 „ 25	327	21	2	..	21	56	..	195	..	22	1½	..	42	16	..	..	..	..	..	..	..	..	..	..	15	7	57
„ 25 „ Aug. 1	250	23	3	..	34	50	..	222	..	24	1½	..	42	18	..	..	..	..	..	..	..	..	..	..	15	8	57
„ 1 Aug. „ 8	333	25	2	..	26	53	..	222	..	24	1½	..	44	18	..	..	..	..	..	..	..	..	..	..	14	10	57
„ 8 „ 15	220	22	2	..	22	44	..	229	5	15	1½	..	48	18	4	..	57	..	..	..	..	..	..	..	21	10	57
„ 15 „ 22	242	22	3	..	22	44	..	222	11	..	1½	..	50	18	24½	..	..	..	..	..	..	..	..	..	14	10	57
„ 22 „ 29	340	22	3	..	36	46	..	222	11	..	1½	..	67	20	24½	..	..	24	..	..	..	..	..	..	10	10	57
„ 29 „ Sept. 5	220	18	14	..	13	56	..	218	11	..	1½	..	52	18	24½	..	..	..	..	..	..	..	..	..	10	10	57
„ 5 Sept. „ 12	336	23	2	..	12	46	..	215	10	.	½	..	48	19	24½	102	57	24	..	..	..	..	..	..	9	12	57
„ 12 „ 19	224	22	2	..	10	50	..	211	10	..	½	...	48	19	24½	..	57	24	..	..	..	..	..	..	8	14	57
„ 19 „ 26	354	22	3	..	13	58	..	208	10	...	½	..	48	19	24½	..	57	24	..	..	..	..	..	..	8	15	57
„ 26 „ Oct. 3	220	21	3	..	36	43	..	231	11	..	½	..	48	18	24½	..	57	24	..	..	..	..	..	..	12	13	57
„ 3 Oct. „ 10	390	21	3	..	30	59	..	121	6	..	½	..	63	18	24½	..	40¾	24	..	..	..	66	..	..	13	22	57
„ 10 „ 17	440	18	15	..	36	52	..	124	6	..	½	..	59	17	24½	..	..	..	..	..	..	..	..	..	14	18	57
„ 17 „ 24	308	16	13	..	26	55	..	108	10	..	½	..	52	18	24½	..	..	..	..	..	..	..	..	..	14	19	57
„ 24 „ 31	308	18	13	..	19	43	..	102	10	..	½	..	56	18	24½	..	..	..	..	..	..	..	..	..	14	21	57
Total Expense between 2 May and 31 October, 1818.....	7516	541	128	..	646	1086	865	4401	186	238	26½	..	1156	461	273	264	382	144	..	..	..	134	111	..	332	275	
Remained 31 Oct. 1818	11984	1349	652	325	1622	4161	..	30599	884	378	148½	30	5244	1819	2031	2313	4818	1156	1300	144	53						

AN ACCOUNT, shewing the Weekly Expense and Remains of Provisions on board His Majesty's Ship *Alexander*, between the 3d Day of *May*, and the 31st Day of *October*, 1818, being the Days on which she sailed from and returned to *Brassa Sound, Shetland.*

ALEXANDER, 1818.	Bread, in Pounds	Gallons			Pieces of		Pounds of				Pease		Oatmeal, Gallons	Pounds of				Preserved Meats	Vegetable Soup, Quarts	Concentrated Soups, 1 Pints	Cases of Essence of Malt and Hops	Essence of Spruce, Pots	Pounds of Molasses	Candles, Pounds	Coals, Bushels.	Total No. on Board
		Spirits	Wine	Vinegar	Beef, 4 lbs	Pork, 2 lbs	Fresh Beef	Flour	Suet	Raisins	Bushels	Gallons		Sugar	Cocoa	Lemon Juice	Tobacco									
Remained 2 May	12644	1205	486	227	1848	3657	86	18333	720	448	109	4	172	4207	1184½	1584	1817	3639	910	910	37	144	774	2129	1467	
From 2 May to 9	229	11½	4½	..	6½	19½	86	194½	..	22	..	2½	..	22½	10¼	..	..	..	..	..	..	..	..	7	10	37
„ 9 „ 16	229	13½	..	..	8¼	12½	179	42½	..	..	..	3	..	26¼	20	..	33	..	..	..	..	..	..	7	10	37
„ 16 „ 23	214	14	4	..	..	..	253	28	..	..	..	..	..	20¼	10¼	..	..	..	..	..	..	..	..	10	11	37
„ 23 „ 30	224	13	4¾	..	7	27	77	98	..	22	..	2½	..	20¾	10	..	..	..	..	..	..	..	..	10	12	37
„ 30 „ June 6	260	15	4	..	19	31	..	110	..	18	1	..	..	37	11	17	..	..	..	..	..	..	..	8	13	37
„ 6 June „ 13	185	14½	4	7	24	36	..	120	..	14	..	2	..	42	11	16	..	..	..	..	..	..	..	7	13	37
„ 13 „ 20	190	16	4	..	24	32	..	135	..	16	..	2	..	44	11	16	..	37	..	..	..	..	..	4	12	37
„ 20 „ 27	150	16	4	..	32	44	..	140	..	14	1	..	..	42	11	16	61	..	..	..	..	..	..	4	12	37
„ 27 „ July 4	180	16	4	..	15	27	..	140	..	16	..	..	..	44	11	17	..	..	..	..	..	..	..	4	12	37
„ 4 July „ 11	160	14½	4	4	12	27	..	150	..	16	1	..	..	43	11	16	..	..	..	..	..	..	..	5	14	37
„ 11 „ 18	175	14¾	4	..	18	28	..	140	..	17	..	2	..	36	11	16	..	..	..	..	..	..	..	4	14	37
„ 18 „ 25	190	16	4	..	34	59	..	140	..	12	2	..	..	42	11	16	..	..	..	..	..	..	..	4	14	37
„ 25 „ Aug. 1	180	15	..	..	15	27	..	151	..	17	1	4	..	37	11	19	..	..	..	..	..	..	..	4	14	37
„ 1 Aug. „ 8	180	19	5	..	12	27	..	160	..	14	1	6	..	40	11	16	34	37	..	..	..	..	..	5	14	37
„ 8 „ 15	178	16	4	4	17	30	..	155	18	2	1	2	..	42	11	16	..	..	..	..	..	..	..	6	14	37
„ 15 „ 22	182	17	4	..	14	32	..	163	..	14	1	..	..	41	12	16	..	19	..	..	..	..	..	8	16	37
„ 22 „ 29	170	15	5	..	30	60	..	150	..	15	..	4	..	40	11	17	..	..	..	..	..	..	..	13	15	37
„ 29 „ Sept. 5	160	15	4	..	12	27	..	149	25	2	1	..	..	42	11	16	..	..	..	..	..	..	..	17	15	37
„ 5 Sept. „ 12	182	15	4	..	17	15	..	130	8	..	1	..	..	42	11	16	..	37	18½	..	..	..	..	20	15	37
„ 12 „ 19	255	15	4	..	16	23	..	177	7	..	1	3	..	36	11	16	60	37	18½	..	..	..	..	24	15	37
„ 19 „ 26	165	15	4	..	4	43	..	138	7	..	1	1	..	39	11	17	..	37	18½	..	..	..	..	20	15	37
„ 26 „ Oct. 3	160	15	4	..	35	57	..	206	7	..	1	2	..	41	11	16	..	37	18½	..	..	..	..	28	18	37
„ 3 „ 10	158	16	6	..	8	27	..	150	8	..	1	2	..	30	11	16	..	63	18½	..	..	..	..	39	22	37
„ 10 „ 17	158	15	..	..	5	27	..	162	10	..	1	..	..	31	11	16	..	40	18½	..	..	..	..	39	22	37
„ 17 „ 24	155	15	4	12	18	26	..	140	7	..	1	..	..	37	11	17	..	37	18½	..	..	..	..	39	22	37
„ 24 „ 31	158	15	4	..	10	21	27	76	11	..	1	..	..	31	11	17	?	37	18½	..	..	..	..	45	21	37
Remained 31 October, 1818..	7817	812	386	200	1435	2870	65	14868	623	217	83	..	172	3256	890	1925	1629	3921	763	910	37	144	774	1749	1072	

The following Quantities of PROVISIONS and VICTUALLING STORES were put on board each of the Vessels undermentioned; being the established Allowance for Twenty-six Lunar Months, for the Number of Men expressed against the Ships' Names respectively.

Ships' Names and Complement.	Pounds of		No. of		Pounds of					Bushels of		Gallons of			Pounds of					Capillaire, gallons.	Salep Powder.	Chaldrons of Coals.
	Bread.	Flour in lieu of Bread.	Beef, eight lbs. pieces.	Pork, six lbs. pieces.	Flour.	Suet.	Raisins.	Cocoa.	Sugar.	Pease.	Oatmeal.	Wine.	Spirits.	Vinegar.	Tobacco.	Lemon Juice.	Sugar for Lemon Juice.	Candles.	Molasses.			
Men.																					lb.	
Isabella .. 50	18200	18200	1300	2600	7800	1000	600	1950	3900	162½	30	700	1925	325	2600	2275	2275	2184	1539	22	20	
Dorothea.. 50	18200	18200	1300	2600	7800	1000	600	1950	3900	162½	30	700	1925	325	2600	2275	2275	2184	1539	22	20	
Trent 35	12740	12740	910	1820	5460	710	400	1365	2730	113¾	21	490	1347½	227	1820	1592½	1592½	2184	774	15	20	
Alexander 35	12740	12740	910	1820	5460	710	400	1365	2730	113¾	21	490	1347½	227	1820	1592½	1592½	2184	774	15	20	
170	61880	61880	4420	8840	26520	3420	2000	6630	13260	552½	102	2380	6545	1104	8840	7735	7735	8736	4626	74	80	The Ships were ballasted with Coals.

The following STATEMENT comprehends the PROVISIONS and VICTUALLING STORES furnished to each of the Vessels employed on a Voyage of Discovery, in addition to the established Allowance; besides, to the Isabella and Dorothea, five Gallons concentrated Vinegar.

SHIPS' NAMES.	Cases of Essence of Malt and Hops.	Pounds of Preserved Meats.	Quarts of Vegetable Soup.	Quarter-Pints of Concentrated Soup.	Essence of Spruce, Pots.	Pounds of								Potatoes, Tons.	Bushels of				Sour Crout, Pounds.	Gallons of Pickled	
						Mint.	Balm.	Sage.	Thyme.	Marjoram.	Savory.	Lemon Thyme	Celery Seed.		Turnips.	Carrots.	Parsneps.	Onions.		Walnuts	Cabbages.
Isabella	53	5200	1300	1300	144	40	30	16	6	6	3	6	20	6	10	20	4	12	224	20	20
Dorothea	53	5200	1300	1300	144	40	30	16	6	6	3	6	20	6	10	20	4	12	224	20	20
Trent	37	3640	910	910	144	30	25	12	4	4	2	4	15	4½	8	15	3	10	224	20	20
Alexander	37	3640	910	910	144	30	25	12	4	4	2	4	15	4½	8	15	3	10	224	20	20
	180	17680	4420	4420	576	140	110	56	20	20	10	20	70	21	36	70	14	44	896	80	80

During our stay at Deptford, we were joined by John Sacheuse, an Eskimaux, native of South-east Bay, Greenland, in latitude 69° N., and longitude 50° W. It would appear that he had concealed himself on board the Thomas and Ann, of Leith, in the month of May, 1816: on being discovered, Captain Newton, who commanded that vessel, wished to land him again, but he earnestly entreated to be permitted to remain, and he was accordingly brought to Leith. He returned to Greenland with the same ship in 1817, and, on his arrival at home, found his only near relation had died in his absence. It was not ascertained, at his first outset, what were his motives for quitting his native country; but it seemed now that the death of his relation was his reason for continuing in the ship, which he did, returning to Leith with her the same season. I had several conversations with him on the subject; he related many adventures and narrow escapes he had experienced in his canoe, in one of which he stated himself to have been carried to sea in a storm with five others, all of whom perished, and that he was miraculously saved by an English ship. He also informed me that he had, through the missionaries, been converted to Christianity, and the strong desire he had to see the country these good men came from, had induced him to desert his own; but that it was always his intention to return, when he had learnt the Scriptures and the art of drawing; he related several traditions current in

his country respecting a race of people who were supposed to inhabit the north; adding, that it was for the purpose of communicating with them, and converting them to Christianity, that he had volunteered for our expedition.

During his residence at Leith, in the winter of 1817, he had been taken notice of by Mr. Nasmyth, the artist, who introduced him to Sir James Hall. His wishes to accompany us were made known to the Admiralty through Captain Basil Hall, and he was consequently engaged as our interpreter. His utility to us in communicating with the natives will be apparent in the course of this Narrative. He returned, like the rest of the crew, in perfect health, during the passage home; often repeating that, when he had got more instructions on religion, he would return to the *wild people*, and endeavour to convert them to Christianity.

His meritorious conduct was represented by me to the Admiralty in the strongest terms; their Lordships treated him with the utmost liberality, and, aware of the importance of his services on a future expedition, had taken steps to have him properly instructed, and for which purpose he was sent to Edinburgh; here he was unfortunately attacked by a typhus fever, which carried him off on the 14th of February, after a few days' illness.

Our equipment being completed, the expedition was inspected

by his Royal Highness the Duke of Clarence, and subsequently by the First Lord of the Admiralty, and Comptroller of the Navy, who were pleased to express their approbation of the manner in which the Ships were strengthened and fitted; and, the provisions being stowed, we dropped down to Galleons on the 4th of April, and received our powder and ordnance stores. On the 16th we arrived at the Nore, where the chronometers, and other instruments, were embarked, and where I received my final Instructions, a copy of which precedes the Narrative.

EXPLANATIONS OF SEA TERMS

USED IN ICY SEAS.

Iceberg, an insulated mountain of ice.

A Field, a piece of ice so large that its extent cannot be seen.

A Floe, a piece of ice of a considerable size, but the extent of which can be distinguished.

A Patch, a number of pieces of ice overlapping and joining each other.

A Stream, a number of pieces of ice joining each other in a ridge on any particular direction.

Loose Ice, a number of pieces near each other, but through which the ship can make way.

Sailing Ice, a number of pieces at a distance, sufficient for a ship to be able to beat to windward among it.

Brash Ice, ice in a broken state, and in such small pieces, that the ship can easily force through.

Cake Ice, ice formed in the early part of the same season.

Bay Ice, newly-formed ice, having the colour of the water.

Hummocks of Ice, lumps of ice thrown up by some pressure, or force, on a field or floe.

Heavy Ice, that which has a great depth in proportion, and is not in a state of decay.

A Lane, or *Vein*, a narrow channel between two floes or fields.

Beset, surrounded with ice, so as to be obliged to remain immoveable.

Nipt, caught and jammed between two pieces of ice.

A Tongue, a piece projecting from the part of an iceberg which is under water.

A Calf, a piece of ice which breaks from the lower part of a field or berg, and rises with violence to the surface of the water.

A Barrier, ice stretching from the land ice to the sea ice, or across a channel, so as to be impassable.

Land Ice, ice attached to the shore within which there is no channel.

Sea Ice, ice within which there is a separation from the land.

CONTENTS.

CHAPTER I.

SAILING of the Expedition from the River—Arrival at, and Departure from, Shetland, p. 17.

CHAPTER II.

CONTINUATION of the Voyage—Olof Kramer's Shoal—Existence of the sunken land of Buss doubted—Sight of the first Iceberg—Arrival at Davis' Strait—Observations on Chronometers, p. 23.

CHAPTER III.

PROGRESS of the Voyage up the Straits—Sundry Observations—Intercourse with the Natives—Difficulties in the Ice—Large Icebergs—Arrival and Detention at Waygatt, p. 34.

CHAPTER IV.

DEPARTURE from Waygatt—Perilous progress through the Ice to Unknown Island—Pass the second and third Barriers of Ice—A Bear on the Ice—Accident to the Master of a Whaler from the attack of one of these Animals—Melville's Monument, and Melville Bay discovered—Harpooning a Whale, p. 49.

CHAPTER V.

CONTINUED progress through the Ice—Imminent Peril of the Ships—Discovery of an unknown tribe of Eskimaux—Intercourse with the Natives, p. 73.

CHAPTER VI.

THE Ships obliged to leave their Moorings—Further Communication with the Natives—Discovery of Prince Regent's Bay—and Departure from it, p. 97.

CHAPTER VII.

THE Arctic Highlands—Nature of the Country—its Produce—Inhabitants—Language—Mode of Living—Manners and Customs—Religion, p. 115.

CHAPTER VIII.

PASSAGE through the last Barrier—Discovery of Cape York—Crimson Cliffs and Coloured Snow—Cape Dudley Digges—Formation of an Iceberg—Petowack—Wolstenholme Sound—Observations on the Atmosphere, p. 136.

CHAPTER IX.

PROGRESS towards the North—Whale Sound, Carey's Islands, and Head of Baffin's Bay, discovered—Smith's Sound—Cape Clarence—Jones's Sound—Entangled with Ice—Thick Fogs—Cape Leopold—Princess Charlotte's Monument—Get clear of the Ice, and proceed to the Southward, p. 146,

CHAPTER X.

FURTHER progress to the Southward—Find Open Sea—Discover, and give Names to, various Headlands and Bay—Arrive at Lancaster Sound, and explore it—Take possession of the Country—Extraordinary Variation of the Compass—Continue exploring the Coast to the Southward, p. 162.

CHAPTER XI.

CONTINUE our Progress to the Southward, exploring the West Coast of Baffin's Bay—Cape Graham Moore—Pond's Bay—Coutts' Inlet—Discovered Land Trends to the Eastward—North Galloway and North Ayr discovered, and Names given to various Places—Land on an Island near Cape Eglinton, which is named Agnes' Monument—Coast Trends to the Southward—Continue exploring it, and reach Cape Walsingham, p. 190.

CHAPTER XII.

PROCEEDINGS off Cape Walsingham and Mount Raleigh—Experiments on the Temperature of the Water—The Breadth of Davis' Strait, and Non-existence of James's Island determined—Progress to the Southward—Sanderson's Tower—Several Islands discovered—Arrive off Cumberland Strait—Departure taken from Resolution Island—Attempt to make Cape Farewell—A dreadful Storm—Arrive at Shetland, p. 212.

CHAPTER XIII.

PROCEEDINGS of the Ships at Shetland—Sail from thence, and arrive at Hull—General Orders to the Officers, and various Regulations—Arrival in the Thames—and Conclusion of the Voyage, p. 227.

DIRECTIONS FOR PLACING THE PLATES.

PAGE

CHART, as Frontispiece.

1. Gardie-house, Seat of W. Mouat, Esq. . . . . *To face* 18
2. Passage through the Ice 46
3. A remarkable Iceberg, latitude 70° 45′ N. 47
4. Island of Disco and Icebergs 50
5. Kalie, native of Opernovick 55
6. Remarkable Iceberg, latitude 74° 58
7. Isabella and Alexander sawing the Ice 62
8. Cape Melville and Melville's Monument 74
9. Perilous Situation of the Isabella and Alexander 77
10. First Communication with the Natives, by Sacheuse 88
11. Ervick, native of Prince Regent's Bay 95
12. Arctic Highlanders 95
13. Sledge, *&c.* 102
14. Chart of the Part of Baffin's Bay found Inhabited 116
15. Crimson Cliffs 139
16. Petowack, formation of an Iceberg 141
17. Wolstenholme Sound 142
18. Cape Leopold, Coburg Bay 161
19. Cape Byam Martin 170
20. View of Lancaster Sound . . . . . } *To face each other* 174
21. Chart of Lancaster Sound . . . . . }
22. Cape Graham Moore, *&c.* 122
23. Dog and Bear's Heads 199
24. Bear plunging into the Sea 208

APPENDIX.

1. Xeme lvii
2. 3. 4. 5. Meteorological Journals. N. B. The small one, with Directions, to face *May* and *October*; next, June and July; then August and September . . . . . *To follow Appendix.*
6. 7. Views of Headlands . . . . . *To follow Appendix.*

OFFICIAL INSTRUCTIONS.

By the Commissioners for executing the Office of Lord High Admiral of the United Kingdom of Great Britain *and* Ireland, *&c.*

'HIS Royal Highness The Prince Regent having signified his pleasure to Viscount Melville, that an attempt should be made to discover a Northern Passage, by sea, from the Atlantic to the Pacific Ocean; We have, in consequence thereof, caused four ships or vessels to be fitted out and appropriated for that purpose, two of which, the Isabella and the Alexander, are intended to proceed together by the north-westward through Davis' Strait; and two, the Dorothea and Trent, in a direction as due north as may be found practicable through the Spitzbergen seas.

" And whereas we have thought fit to intrust you with the command and direction of the former expedition, and have directed Lieutenant Parry, who has been appointed to command the Alexander, to follow your orders for his further proceedings; you are hereby required and directed to proceed to sea, with all convenient despatch, in the Isabella, and, taking under your orders the Alexander above mentioned, make the best of your

way into Davis' Strait, through which you will endeavour to pass to the northward, without stopping on either of its coasts, unless you shall find it absolutely necessary. In this passage you may expect to meet with frequent obstructions from fields and islands of ice; to get clear of which, and to ensure the safety of the ships and people committed to your charge, will require from you, and all who are under your orders, the greatest precaution and vigilance. And, as the navigation among ice may be considered as an art to be acquired only by practice, we have directed that there be appointed to each of the ships under your orders, a master and a mate of whale-fishing vessels, well experienced in those seas, from whose knowledge and skill you may derive material assistance.

" It is not improbable that in the early part of the season, when you may be expected to arrive in Davis' Strait, the ice may be found to stretch across from land to land; but as ice is known to vary in its position from year to year, and several times in the course of a year, and, in those places where not fast by the ground, is almost constantly in motion by winds, tides, and currents; if, on your arrival, it should appear to present a compact barrier, you will, of course, be prepared to avail yourself of the first opening which may be discovered, to pass to the northward. As, however, in the present state of uncertainty with regard to the movements of the ice, and with the very imperfect knowledge we have of this strait, and still more so of the sea beyond it, no specific instructions can be given for your guidance, the time and manner of proceeding to fulfil

the ulterior object of your destination, in places where impediments may occur, must be left entirely to your discretion; in the exercise of which, we rely on your zeal and skill in your profession for the accomplishment, as far as it can be accomplished, of the service on which you are employed; not doubting that every exertion will be made on your part, and on that of your officers, while, at the same time, no precaution will be omitted, that prudence may dictate, to avoid accidents on an enterprise of so arduous a nature as that of conducting ships in safety through fields of ice in unknown seas. It may not, however, be amiss to suggest, as a general observation, that a passage through fields of ice is most likely to be found where the sea is deepest and least connected with land; as there is reason to suppose that ice is found to be more abundant near the shores of the continent and islands, in narrow straits, and deep bays. And it may also be expected, that the sea will be most clear of ice where the currents are strongest, as the stream of a river will continue open long after the sides are frozen up.

"From the best information we have been able to obtain, it would appear that a current of some force runs from the northward towards the upper part of Davis' Strait, during the summer season, and, perhaps, for some part of the winter also, bringing with it fields of ice in the spring, and ice bergs in the summer.

"This current, if it be considerable, can scarcely be altogether supplied by streams from the land, or the melting of ice; there would, therefore, seem reason to suppose, that it may be

derived from an open sea; in which case, Baffin's Bay cannot be bounded by land, as our charts generally represent it, but must communicate with the Arctic Ocean.

" In passing up the Strait, if such a current should be discovered, it will be of the greatest importance to you, in pointing out that part of the Strait which is likely to be the least encumbered with ice, as well as leading you direct to the opening by which it may be supposed to pass from the Arctic Sea into Davis' Strait.

" In tracing this current, you will soon discover whether it takes its origin in the north-east or north-west quarter: if in the former, you will, of course, abandon all pursuit of it further; but if it should come from the north-west or west, it will prove the best guide you can follow, to lead you to the discovery of which you are in search.

" The strength and direction of the current should be tried once in twenty-four hours; or oftener, if any material change is observed to take place; and it will be most advisable to take its temperature at the surface frequently, as you proceed, to compare it with the temperature of the surface, where there is no current.

" If the reports of several intelligent masters of whaling vessels may be relied on, that part of the sea to the northward of Davis' Strait, which is marked on the charts as ' Baffin's Bay,' (that is to say, from the 72d degree of northern latitude, to the 77th, where Baffin is supposed to have seen the land,) is generally free from field ice, which, from its extent of

surface, offers the greatest impediment to navigation. Should you find this actually to be the case, it may be advisable to stand well to the northward, before you edge away to the westward, in order to get a good offing, in rounding the north-east point of the continent of America; whose latitude has not been ascertained, but which, if a conjecture may be hazarded, from what is known of the northern coast of that continent, may perhaps be found in or about the 72d degree of latitude.

" In the event of your being able to succeed in rounding this point, and finding the sea open, you are carefully to avoid coming near the coast, where you would be most likely to be impeded by fixed or floating ice; but, keeping well to the northward, and in deep water, make the best of your way to Behring's Strait, through which you are to endeavour to pass into the Pacific Ocean; and, in the event of your succeeding to pass this Strait, you are then to make the best of your way to Kamtschatka, if you think you can do so without risk of being shut up by the ice on that coast, for the purpose of delivering to the Russian Governor, duplicates of all the journals and other documents which the passage may have supplied, with a request, that they may be forwarded overland to St. Petersburgh, to be conveyed from thence to London; and from this, you will proceed to the Sandwich Islands, or New Albion, or such other place in the Pacific Ocean as you may think proper, to refit and refresh your crews; and if, during your stay at such place, a safe opportunity should occur of

sending these papers to England, you should send duplicates by that conveyance.

" If the circumstances of your passage should be such as to encourage your attempting to return by the same course, you may winter at the Sandwich Islands, New Albion, or any other proper place; and, early in next spring, may proceed direct for Behring's Strait, and use your endeavours to repass the same; and, should you succeed in this attempt, you are to proceed, if possible, to the eastward, keeping in sight and approaching the coast of America, whenever the position of the ice will permit you so to do, in order that you may be enabled to ascertain the latitudes and longitudes of some of the most remarkable headlands or inlets that may occur; taking every possible precaution, however, against being beset by the ice, and thus compelled to winter on that coast.

" Before, however, you determine on returning by the same way, you will maturely consider and weigh the prudence of making such an attempt. If your original passage should be made with facility, and you see reason to believe that your success was not owing to circumstances merely accidental or temporary, and that there is a probability that you may be able also to accomplish the passage back, it would be undoubtedly of great importance that you should endeavour to make it: but if, on the other hand, it shall have been attended with circumstances of danger or difficulty, so great as to persuade you that the attempt to return would risk the safety of the ships, and the lives of the crews, you, in this case, are to abandon all thoughts

of returning by the northern passage, and are to make the best of your way home-ward, by Cape Horn.

" Previous to your leaving England, or at any rate before your departure from Shetland, you are to fix with Captain Buchan, to whom the other expedition is intrusted, upon a rendezvous in the Pacific; and if you should be joined by the Dorothea and Trent, or either of them, you are to take them under your command; and, having detached one ship, with a copy of all your papers, and a complete set of despatches reporting your proceedings, to England, by the route of Cape Horn, you are to proceed with the other ships to repass Behring's Strait, as above directed, if you should have determined on that course; but, if you should have resolved to return by the South, you are to take care to interchange with Captain Buchan copies of your respective journals and despatches; or, if you do not meet Captain Buchan, or his ships, you are to deposit copies of your own papers on board the Alexander, in order to ensure, as far as possible, the arrival of these important documents in England, by thus multiplying the modes of conveyance.

" If, however, it should so happen, that from obstruction of ice, or any other circumstance, your progress to the westward should prove too slow to admit of your approach to Behring's Strait, before the present season shall be too far advanced, to make it safe to attempt that passage; and, at the same time, your progress should be too considerable to the westward, to ensure your return the same season by the way of Davis' Strait; you are, in that case, to edge down to the northern coast of

America, and endeavour to find out some secure bay, in which the ships may be laid up for the winter; taking such measures for the health and comfort of the people committed to your charge, as the materials with which you are supplied for housing in the ships, or hutting the men on shore, may enable you to do: and, if you shall find it expedient to resort to this measure, and you should meet with any inhabitants, either Eskimaux or Indians, near the place where you winter, you are to endeavour by every means in your power to cultivate a friendship with them, by making them presents of such articles as you may be supplied with, and which may be useful or agreeable to them: you will, however, take care not to suffer yourself to be surprised by them, but use every precaution, and be constantly on your guard against any hostility.

"You will endeavour to prevail on them, by such reward, and to be paid in such manner, as you may think best to answer the purpose, to carry to any of the settlements of the Hudson's Bay Company, or of the Northwest Company, an account of your situation and proceedings, with an urgent request that it may be forwarded to England with the utmost possible despatch.

"If, however, all your endeavours should fail in getting so far to the westward as to enable you to double the north-eastern extremity of America, (round which these Instructions have hitherto supposed a passage to exist), you are, in that case, to use all the means in your power, by keeping to the northward and eastward, to ascertain to what extent you can

proceed along the western coast of Old Greenland; and whether there is any reason to suppose that it forms a part of the continent of America; and you are also to endeavour to improve the very imperfect geography of the eastern coast of America, and of the island or islands which are supposed to intervene between it and Disco Island in Davis' Strait; but you are, on no account, in this latter case, to remain on this service so long, unless accidentally caught in the ice, as to be obliged to winter on any part of the eastern coast of America, or the western coast of Old Greenland, or the intermediate islands; but to leave the ice about the middle or 20th of September, or the 1st of October at the latest, and make the best of your way to the River Thames.

"Although the first, and most important, object of this voyage, is the discovery of a passage from Davis' Strait, along the northern coast of America, and through Behring's Strait, into the Pacific; it is hoped, at the same time, that it may likewise be the means of improving the geography and hydrography of the Arctic Regions, of which so little is hitherto known, and contribute to the advancement of science and natural knowledge.

"With this view, we have caused a great variety of valuable instruments to be put on board the ships under your orders, of which you will be furnished with a list, and for the return of which you will be held responsible; and have also, at the recommendation of the President and Council of the Royal Society, ordered to be received on board the Isabella, Captain

Sabine, of the Royal Artillery, who is represented to us as a gentleman well skilled in astronomy, natural history, and various branches of knowledge, to assist you in making such observations as may tend to the improvement of geography and navigation, and the advancement of science in general. Amongst other subjects of scientific inquiry, you will particularly direct your attention to the variation and inclination of the magnetic needle, and the intensity of the magnetic force; you will endeavour to ascertain how far the needle may be affected by the atmospherical electricity, and what effect may be produced on the electrometer and magnetic needle on the appearance of the Aurora Borealis. You will keep a correct register of the temperature of the air and of the surface of the sea; and you will frequently try the temperature of the sea, in various situations, and at different depths. You will cause the dip of the horizon to be frequently observed by the dip sector invented by Doctor Wollaston; and ascertain what effect may be produced by measuring that dip across fields of ice, as compared with its measurement across the surface of the open sea. You will also cause frequent observations to be made for ascertaining the refraction, and what effect may be produced by observing an object, either celestial or terrestrial, over a field of ice, as compared with objects observed over a surface of water; together with such other meteorological remarks as you may have opportunities of making. You are to attend particularly to the height, direction, and strength, of the tides, and to the set and velocity of the currents; the depth and soundings of the sea, and the nature of the

bottom; for which purpose you are supplied with an instrument better calculated to bring up substances than the lead usually employed for this purpose.

" For the purpose, not only of ascertaining the set of the currents in the Arctic Seas, but also of affording more frequent chances of hearing of your progress, We desire that you do, frequently after you shall have passed the latitude of 65° North, and once every day when you shall be in an ascertained current, throw overboard a bottle, closely sealed, and containing a paper stating the date and position at which it is launched; and you will give similar orders to the Commander of the Alexander, to be executed in case of separation. And for this purpose, we have caused each ship to be supplied with papers, on which is printed, in several languages, a request that whoever may find it should take measures for transmitting it to this office.

" And, although you are not to be drawn aside from the main object of the service on which you are employed, as long as you may be enabled to make any progress, yet, whenever you may be impeded by ice, or find it necessary to approach the coasts of the continent or islands, you are to cause views of bays, harbours, headlands, *&c.*, to be carefully taken, to illustrate and explain the track of the vessels, or such charts as you may be able to make: on which duty, you will be assisted by Lieutenant Hoppner, whose skill in drawing is represented to be so considerable, as to supersede the necessity of appointing a professional draughtsman.

" You are to make use of every means in your power, to collect

and preserve such specimens of the animal, mineral, and vegetable kingdoms, as you can conveniently stow on board the ships: and, of the larger animals, you are to cause accurate drawings to be made, to accompany and elucidate the descriptions of them. In this, as well as in every other part of your scientific duty, we trust that you will receive material assistance from Captain Sabine.

" You are to use your best endeavours, and give instructions to the same effect to Lieutenant Parry, to keep the two vessels constantly together, and prevent their separation: if, however, they should separate, you are to appoint Lerwick, in the Shetland Islands, as the first rendezvous, and, after that, Love Bay, Disco Island, in Davis' Strait; beyond which, as nothing is known, no other rendezvous can be appointed. And in the event of any irreparable accident happening to either of the ships, you are to cause the officers and crew of the disabled ship to be removed into the other, and, with her singly, to proceed in prosecution of the voyage, or return to England, according as circumstances shall appear to require: should, unfortunately, your own ship be the one disabled, you are, in that case, to take the command of the Alexander: and, in the event of your own inability, by sickness or otherwise, to carry these instructions into execution, you are to transfer them to the Lieutenant next in command, who is hereby required to execute them in the best manner he can, for the attainment of the several objects in view.

" As, in all undertakings of this nature, several emergencies

may arise, against which no foresight can provide, and no specific instructions can be given; you are, in all such cases, to proceed in such a manner as you may judge to be most advantageous to the service on which you are employed; most likely to advance the accomplishment of the various objects of the expedition; and most conducive to the security of the ships, and the health, comfort, and safety, of your officers and men.

" On your arrival in England, you are immediately to repair to this office, in order to lay before Us a full account of your proceedings in the whole course of your voyage; taking care, before you leave the ship, to demand from the officers and petty officers, the logs and journals they may have kept; and also from Captain Sabine, such journals or memoranda as he may have kept; which are all to be sealed up: and you will issue similar directions to Lieutenant Parry and his officers; the said logs, journals, or other documents, to be thereafter disposed of, as We may think proper to determine.

" His Majesty's Principal Secretary of State for Foreign Affairs has been requested to apply to the courts of Russia, Denmark, and Sweden, to issue orders to their respective subjects, to afford any hospitality or assistance which these expeditions may be in a situation to require and receive: the Court of Russia has been particularly requested to give directions to the authorities at Kamtschatka, for the safe conveyance of any despatches you may intrust to them; and the Courts of Denmark and Sweden have been requested to order any of their

ships, whether national or private, which you may fall in with, to treat you with amity, and to note carefully in their logs the situations in which they may see any of His Majesty's ships. You will, on your part, behave with cordiality and friendship to any foreign vessels you may fall in with, or the authorities of any port or place at which you may touch: and on all such occasions, you will not fail to address to Our Secretary, for Our information, a general account of your proceedings up to the date at which the opportunity of conveying your despatch may occur.

" Given under Our hands the 31st of March, 1818.

" MELVILLE.
" J. S. YORKE.
" GEO. HOPE.
" G. MOORE."

To
John Ross, Esq., Commander
of His Majesty's Sloop Isabella.

By Command of their Lordships,
J. W. CROKER.

VOYAGE OF DISCOVERY,

&c. &c.

A

VOYAGE OF DISCOVERY

TO

THE ARCTIC REGIONS.

CHAPTER I.

SAILING OF THE EXPEDITION FROM THE RIVER—ARRIVAL AT, AND DEPARTURE FROM SHETLAND.

HAVING in the Introductory Observations detailed all that appears necessary respecting the origin of our voyage to the Arctic Regions, and paid a just tribute to the active zeal and liberality shown by the several departments concerned in the equipment of the ships destined for the expedition, I proceed to lay before the Public an account of our progress towards the main object of our enterprise—namely, the solution of the long-agitated question, respecting the existence of a passage from the Atlantic to the Pacific Ocean, by way of Davis' Strait and Baffin's Bay.

On the 18th of April, His Majesty's Discovery Ships *Isabella* and *Alexander*, selected for this service, the former commanded by myself, the latter by Lieutenant W. E. Parry, under my

orders, dropped down to Galleons; but, from the prevalence of contrary winds while in the river, and our subsequent detention at Sheerness, for the purpose of paying the crews an advance of three months' wages, it was not until the 25th that our pilot left us off Cromer.

The next day being Sunday, divine service was performed, in which all joined; and, I believe there was not a man who did not indulge, after the fashion of a sailor, in the feeling that, at this very outset of our voyage, its issue was placed in His hands whose power is most visible in the Great Deep—a feeling which many an occurrence, during our hazardous progress, most fully justified.

On the 30th we reached Lerwick in Shetland, where our operations may be said to have commenced. We found here His Majesty's ship Ister, Captain Forrest, by whom we were most kindly replenished in water and provisions. Here too we were fortunate in acquiring the addition to our establishment of an excellent violin player, who was discharged, at his own request, by Captain Oliver, from the Prince of Wales revenue cruizer, in order to join our expedition. I can truly say, that the poor fellow's tuneful art tended to charm away the weariness of many an hour, among those cheerless scenes which so often presented little variety or amusement.

William Mouat, Esq., of Gardie, in Brassa Island, an old and intimate friend, had been anxiously expecting us; and, on our arrival, hastened on board to offer the accommodations, which his spacious mansion afforded, for our astronomers and their

instruments. This offer, together with a hearty invitation to the agreeable hospitality of his house, was most thankfully accepted; and we accordingly landed, taking with us the clock, dipping-needle and chronometers, and immediately began our observations.

On the following morning, our first care was to erect the portable observatory, fix the transit instrument, and measure its elevation. Altitudes for time were obtained, and I was gratified to find, by means of the chronometer, that the longitude of Gardie agreed with the observations I had made on the same spot in 1815.

This day the Dorothea and Trent, Discovery Ships, which were to proceed by the east of Greenland for the Polar Passage, arrived; the latter in so leaky a condition as to render it necessary to haul her on shore for repair.

Captain Forrest, of the Ister, performed the same good offices for these ships as he had done for those under my command; and afforded every other assistance in his power, till he was obliged to leave us in obedience to his orders from the Admiralty.

In getting under weigh, the Ister dropped so near to the shore that it became necessary to anchor again, and when brought up she had only eighteen feet water under her stern. Her signal for assistance was promptly answered by our boats, and I had much satisfaction in witnessing the cool and zealous conduct of the officers and men employed on the occasion; from whence I could fairly anticipate what their energies might effect in situations of greater hazard, to which we ourselves

might be exposed, without the reach of neighbourly assistance. Anchors were laid out, and the frigate was warped into a place of safety; but she was unable to proceed to sea until the day after.

At noon the weather was so cloudy that we were disappointed in our hopes of observing a transit; and, during the rest of the day, Lieutenant Parry and Captain Sabine were busily engaged in making observations on the dip of the needle, and on the intensity of the magnetic force; while others employed themselves in searching for specimens of the animal, vegetable, and mineral kingdoms on the island.

In the course of this day the Prince of Wales sailed, and by her I sent letters, with an account of our proceedings thus far, to the Secretary of the Admiralty.

On the following morning the packet arrived from Leith, having on board, as a passenger, Doctor Hibbert; from him we received a visit, as also from Doctor Edmonstone, and several friends, inhabitants of the island.

Observations on the dipping-needle and the clock were pursued, but the weather again disappointed us of a transit; and, the wind coming round to the South, I determined to sail on the ensuing morning. Part of our apparatus was accordingly embarked that evening, and a bullock (from its unusual bulk known by the name of *Matchless*,) which the liberality of Mr. Mouat had spared us, was taken on board our ship.

But I must not quit this scene of our early operations without offering my testimony to the zeal displayed by Lieutenant

Parry, and Captain Sabine, who were engaged night and day in pursuing every requisite inquiry:—nor were any idle. Messrs. Skene, Ross, and Bushnan, were indefatigable in their exertions; —the two latter filled a portion of their leisure time in traversing the island of Brassa, in search of curiosities and specimens of natural history. A large piece of the back-bone of a whale, which was brought with great pains to Gardie, under the idea that it might possibly be part of the skeleton of a Mammoth, was a source of some mirth, but not such as to discourage future activity in those pursuits.

Captain Sabine having brought off the rest of our instruments, at day-light on the 3d of May, we prepared for sea; and the signal was made for sailing. At eight o'clock, A. M., we took leave of the Dorothea and Trent; and our two ships, with a moderate breeze of fair wind, stood out of the North Channel.

After we were under sail, Mr. Mouat came on board, anxious to assure us of his warmest wishes for our success, and to bring us the latest farewell from his amiable lady on our departure. It is impossible to express, in adequate terms, the high obligations we are under to these worthy friends; a grateful recollection must ever remain with us of their hospitality, of their unremitted kindness, and the warm interest they took in the success of our enterprise. It will be readily believed that we did not part without regret, particularly as we were now on the point of bidding adieu to the last vestige of our native land, with a voyage of uncertain length before us; and it was not with hearts unmoved that we left these shores.

At noon we passed within Whalsey Island, and from thence through the Sound of Yell, the wind favouring us in every winding of the channel; and at three o'clock the Pilot, and bearer of our farewell to families and friends in England, left us on the wide waste of waters, fairly in the Atlantic Ocean.

CHAPTER II.

CONTINUATION OF THE VOYAGE—OLOF KRAMER'S SHOAL—EXISTENCE OF THE SUNKEN LAND OF BUSS DOUBTED—SIGHT OF THE FIRST ICEBERG—ARRIVAL AT DAVIS' STRAIT—OBSERVATIONS ON CHRONOMETERS.

THE remainder of the 3d of May, and the several following days, were not marked by any occurrences of moment as far as regarded our ultimate operations, and will therefore be slightly passed over.

We steered W.N.W. by the compass, from the rock of Stour Holme, in order to make allowance for southerly winds, which were to be expected in our course to Cape Farewell. General orders (of which a copy is in the Appendix), relating to discipline, and the accomplishment of scientific objects, were issued to both ships.

On the 4th we saw a strange sail, probably an American, which passed to windward without noticing us.

The Isabella having run considerably a-head of her consort, during a breeze that sprung up, almost approaching to a gale, we hove to, when the weather moderated, and had leisure for

sounding, but found no bottom in one hundred and fifty fathoms.

Some observations on the temperature of the air, and on the specific gravity and temperature of sea-water, together with the result of experiments made by the self-registering thermometer, and on water drawn up by Sir Humphrey Davy's bottle, were registered in the meteorological journal.

In the evening of the 5th we communicated with the Alexander, in order to share with the crew our friend Mr. Mouat's bullock, and found she had shipped much water, though, fortunately, without receiving any material damage.

May 8. Lat. 59° 28′ N. Long. 17° 22′ W.

Continuing our course, we came, on the 8th of May, to the spot where a bank is laid down in Steel's chart, as discovered by *Olof Kramer*, but we could find no soundings in one hundred and thirty fathoms, any where on or near the place.

At this time, among other provisions of shelter against the inclemency of higher latitudes, our carpenter was busied in making what the sailors call a crow's nest. This is a kind of hurricane-house, fixed at the mast-head, to screen the look-out men from the weather; its form is cylindrical, and the entrance through a trap-door at the bottom, on which the man within stands.

From the 9th to the 16th our progress was much impeded by contrary winds, generally from the west; but being somewhat variable, we took advantage of every occasion to make tacks. There were few occurrences of consequence. We had, however, during these days, many favourable opportunities of making

observations on the variation of the compass and on the chronometers, in which the two ships generally agreed pretty well. Tables of these observations, with others, arranged according to dates, will be found in the Appendix.

May 16. Lat. 56° 58′ N. Long. 25° 55′ W.

Lieutenant Parry's hydrometer not being constructed so as to give the specific gravity of water, he supplied the deficiency by a very ingenious and accurate calculation of his own: but, believing it might be done more easily by comparison, I sent Captain Sabine on board the Alexander with my hydrometer, and also with the azimuth and Jennings's compasses. I had reason to believe that a difference which appeared on this comparison, of at least three quarters of a point in the course of the ships, must rest with the compasses, and therefore made trial of several. I found that Jennings's insulated compass was the medium between all.

At one o'clock P. M., on the 16th, a light breeze sprung up from the eastward, and gradually increased. The barometer rose. We steered at first N.W. by N.; but finding our latitude only 57° we altered our course to N.N.W.

The morning of Sunday, the 17th, broke delightfully, with pleasant, clear, invigorating breezes. Divine service was performed, and a sermon read to the ship's company; and the division of the crew into three watches affording much leisure time for reading, I distributed some religious tracts among the men.

At noon we found ourselves exactly in the latitude of the sunken land of Buss, as it is laid down in some charts, 57° 28′ N.;

May 17. Lat. 57° 28′ N. Long. 28° 20′ W.

and being desirous of determining whether such a bank really existed in long. 29° 45′, we altered our course, being then in 28° 20′, to N.W., for the purpose of ascertaining the fact. We made all sail a-head, kept a good look-out, with the lead constantly going; and, at sun-set, being near the spot, shortened sail, and hove to, in order to sound; but found no bottom in one hundred and eighty fathoms. This was repeated every four miles, with no better success; and when the Alexander came up with us, being then thirty miles past the spot marked out for this sunken bank, we made sail, but kept the lead constantly going.

The existence of this bank has long been doubted by the masters of Greenlandmen, and certainly it is not to be found where laid down in the charts. Various stories respecting it were related by people on board; but it appeared, on comparing their testimonies, that no soundings had ever been actually found. I am more inclined to imagine, that when ships have been struck in this quarter by heavy seas, the shocks have erroneously been attributed to the sunken land of Buss.

Early next morning the weather was fair; but about seven o'clock the wind veered to the westward, and it grew hazy. We continued our soundings, but without finding ground; and held on constantly in the same parallel of latitude. An uprooted tree without branches, measuring three feet and seven inches in length, was picked up. It appeared to have been long at sea, and pieces of it were preserved.

May 19. This day the wind was fair, but the weather thick

and unpleasant. Fearing that the ships might part in the fogs that appeared then to set in, I made signal of my intention to steer N.W. by N. May 17. Lat. 57° 27′ N. Long. 34° 00 W.

In the course of the day I received Lieutenant Parry's Weekly Report, and found that his chronometers differed from ours, giving twelve miles further East. His observations also of the sun and moon, which had before agreed exactly, were twenty miles west of our chronometers and lunar observations. From the latter agreeing so much better with each other than his, I was confirmed in my opinion of our accuracy.

The progress made in Captain Kater's altitude instrument reflected great credit on the skill and perseverance of Lieutenant Parry and Mr. Bisson; but we never could succeed in observing altitudes by the whirling horizon of Troughton.

A piece of blubber was picked up by the Alexander, belonging probably, as its colour denoted, to a whale that had been killed; and Lieutenant Parry supposed, as it was too early in the season to have come from a homeward-bound ship, that it had drifted down Davis' strait, or between Iceland and Greenland. It was, however, my opinion that it had remained on some piece of ice, near Iceland perhaps, throughout the winter, and was thus preserved in a frozen state, till a thaw took place, probably not long before we saw it.

A difference in the variation on board the two ships was observed this day; but it perhaps might be attributed to the influence of a spare anchor, stowed within a few feet of the compasses in the Alexander.

I was anxious, in case of the two ships parting company, that the track I intended to pursue should be known; and I sent notice to Lieutenant Parry as follows:—

To pass the latitude of 58°. north in longitude 46°. west.

Ditto	59°.	52°.
Ditto	60°.	54°.
Ditto	61°.	56°.
Ditto	62°.	57°.

in that longitude to make a north course until we reached latitude 67°; and then steer direct for Love Bay in Disco Island.

Each ship shewed a light this evening, and, with a little management, continued to keep company very well.

During the four following days we experienced almost every variety of weather. On the 20th we saw a cormorant, and a bird much like a duck. Our sails received some damage in a gale of wind on the 21st, which moderated the day after, and we had clear weather.

May 23. Lat. 57° 2′ N. Long. 43° 21′ W.

On the 23d we continued our course to the northward; and though the atmosphere was again clouded we were able to pursue our observations as usual. This evening I remarked the appearance of a current, and the next day ascertained by hoisting out our boat, that it set W.N.W. (true) running at the rate of a quarter of a mile an hour.

May 24. Lat. 57° 33′ N. Long. 44° 32′ W.

We proceeded on the 24th with a favourable breeze, which had been increasing since the night before, and fixed at seven in the morning at S.E. All sail was set, and we went before the wind. The N.W. current was still manifest; but, being unwilling to

delay our course, I did not try its strength, and contented myself with committing to the waves, enclosed in a small copper cylinder, one of the papers furnished by the Admiralty, containing a request in six European languages, that wherever found, the time and place might be noted, and the contents of the vessel sent to the Secretary of the Admiralty. The latitude and longitude, and variation being inserted, it was carefully soldered in, and thrown over-board, in latitude 58° 13′ 38″ North, longitude 46° 15′ 45″ West, with every chance of a long voyage.

Observations for the chronometers on the Atlantic Ocean and the latitude were taken ; but it was too cloudy for lunar distances. The ship being steady, we made observations by Lockwood's dipping-needle. At seven o'clock having run forty-two miles since noon, the Isabella had an offing of above one hundred miles from the nearest part of Greenland. Altered the course to N.N.W.

At eight in the evening, the weather growing thick, with every presage of a gale, we double reefed top-sails, and shortened sail for the Alexander. I gave strict orders for the men to be placed on the look-out, and hail every ten ninutes, as we were passing up the straits where icebergs might be expected.

May 26.
Lat. 38° 36′ N.
Long. 51° 00′ W.

May 26. During the night our light had not been seen from the Alexander, and she was far astern. We shortened sail till noon, when she came up with us. The course was altered to north, by the wind, and we had opportunities of making observations for the chronometers. The latitude agreed ; but we had been sent by the current a few miles to the westward.

At two o'clock on this day, we had our first sight of an

May 26. Lat. 58° 36′ N. Long. 51° 00′ W.

iceberg, covered with snow, bearing N.N.E., at a distance of eight or nine miles. From a calculation made by means of comparison between two objects, it appeared to be about forty feet in height, and a thousand feet long.

Imagination presented it in many grotesque figures: at one time it looked something like a white lion and horse rampant, which the quick fancy of sailors, in their harmless fondness for omens, naturally enough shaped into the lion and unicorn of the King's arms, and they were delighted accordingly with the good luck it seemed to augur. And truly our first introduction to one of these huge masses, with which we were afterwards likely to grow so familiar, was a sort of epoch in our voyage, that might well excuse a sailor's divination, particularly when the aspect with which it was invested tended to inspire confidence, and keep up the energies of the men; a feeling so requisite for an enterprise like ours, where even their curiosity might be chilled for want of excitement.

It is hardly possible to imagine any thing more exquisite than the variety of tints which these icebergs display; by night as well as by day they glitter with a vividness of colour beyond the power of art to represent. While the white portions have the brilliancy of silver, their colours are as various and splendid as those of the rainbow, their ever changing disposition producing effects as singular as they were novel and interesting.

In the evening the weather was clear, and there was no ice in sight from the mast-head. The thermometer fell at night to 36°.

On the 27th, in the morning, I was enabled to take excellent lunar observations, which agreed with our chronometers, and also with observations which were taken by Lieutenant Parry. On comparing my observations with his report, the variation appeared to be 48° with the ships' heads north. May 27. Lat. 59° 12′ N. Long. 51° 18′ W.

The Alexander's chronometers not agreeing by about thirty miles with ours, Lieutenant Parry was dissatisfied with them, and determined to give them new rates from the 1st of June.

May 28. The weather thick and cloudy, but not enough to conceal several icebergs which appeared in sight. We had a fine steady breeze, and smooth water, till eight in the evening, when the wind changed to the southward, and continued in that quarter all the night.

We kept the Alexander near us, and carried sail most proper for manœuvring to avoid ice, should we fall in with any in the haze, or during the night.

Another copper cylinder, with a detail of our situation, was despatched in latitude 61° N., and longitude 53° 25′. It was thrown overboard near a very large iceberg, which we passed at nine P.M. It apparently drifted to the westward, though we could perceive no current.

There was so little darkness during any part of this night, that features of people on the forecastle were distinctly visible from the quarter-deck. At three in the morning (29th) it began to snow, and continued falling through the day. We saw little ice: indeed, the thickness of the weather limited our view to about two miles round us, and prevented our taking an observa-

May 31. Lat. 63° 53′ N. Long. 55° 03′ W.

tion. About one P.M. the Alexander made a signal for an iceberg East, but we could not discern it through the falling snow.

Sunday, *May* 31. Several floes of ice were seen, chiefly in a state of decay: the large iceberg, however, which we had passed was entire. It consisted, apparently, of three strata, the uppermost of indurated snow, the rest was opaque, except a bluish transparent vein, which intersected it horizontally: it presented on one side a precipice about eighty-five feet high from the water, gradually declining to about fifteen feet: the circumference was about twelve hundred feet, and, except at the snowy top, it had much the appearance of limestone, with the peculiar brightness before described. This day the church service was performed, and a sermon read, as usual. Something like land was seen in the evening, but without distinctness. Temperature of the air 28°, of the water at the surface 32°.

Being the last day of the month, I made preparations for summing up all the comparisons of the different chronometers, in order to determine their rates for the ensuing month. The results were as follows:—Earnshaw's, No. 1,024, which had been daily compared with six others, was found to continue gaining, at its original rate, one second each day on mean time for the month of May. This had been proved by observations at Shetland, and from several sets of lunar observations, taken by different persons on board the Isabella and Alexander; and it agreed also with the mean of the seven chronometers. Its original rate, therefore, of one second per day, was considered to be established, and carried to the month of June. In like

manner, Earnshaw, No. 815, was found to increase its rate from 54″ to one second each day. Arnold's chronometer, No. 369, was found to be fast of mean time at Greenwich, 12′ 18″, and to be gaining 5″ 5‴ per day. Parkinson's and Frodsham's, No. 228, was found to have kept, during May, a steady rate of 12″ 5‴ a day, and to be fast of Greenwich 9′ 24″. Arnold's, No. 25, when compared with Earnshaw's two chronometers, and the means of the rest, and also with the result of lunar observations, was found to have preserved a steady rate of 4″ per day, and to be 1′ 10″ fast of mean time at Greenwich. All these, resting on equal proofs, were respectively allowed for in the following month. Arnold's pocket chronometer, probably from its glass being broken, had not settled to any rate; but having been repaired, I began to wear it in my pocket at this time. Thus ended the month of May.

CHAPTER III.

PROGRESS OF THE VOYAGE UP THE STRAITS—SUNDRY OBSERVATIONS—INTERCOURSE WITH THE NATIVES—DIFFICULTIES IN THE ICE—LARGE ICEBERGS—ARRIVAL AND DETENTION AT WAYGATT.

June 1. Lat. 63° 41′ N. Long. 55° 42′ W.

June 1. DURING this day we had, for the most part, moderate weather and cloudy: but towards evening it fell quite calm, and became beautifully serène. The variation, with the ship's head N.E. by E., was found to be about 58° West.

I brought my calculations on the rates of the chronometers to account. Next day we had light variable breezes, with some falls of snow and rain. Every advantage was taken of the wind when fair, and early in the day we fell in with a stream of loose ice. Towards noon we discovered much field ice to the North, and altered our course to avoid it. We were obliged to tack twice to get clear of the outermost floe, and at nine in the evening had passed through a stream of it, at which time the wind fell. The Alexander was far astern, and with difficulty cleared the ice.

Some birds of the peterel kind, and a few little auks were shot. We also saw several seals, and a bottle-nosed whale.

In the former part of the day, about noon, being then in latitude 65° and longitude 56° 30′, a paper in the several lan-

guages before mentioned, and describing our situation, was enclosed in a bottle, and dropped into the sea; for the purpose, as was explained on it, "of determining the current "from Davis' Stait: var. 57° West, the water smooth, and no per- "ceptible current; several icebergs and pieces of loose ice "seen near the place; and no soundings in four hundred and "fifty fathoms: Alexander in company, steering N.E. by E. "by compass."

June 1. Lat. 63° 41′ N. Long. 55° 42′ W.

It was erroneously imagined that we had been set West by a strong current since the morning, and the boat was hoisted out to ascertain the fact, but no effect of a current was apparent; and we afterwards discovered that the idea originated in the observers having read off a wrong degree from the sextant, in the afternoon's altitudes for the chronometers.

The day following we had a fresh breeze against us. Snow still fell, and it was extremely cold. Barometer 29° 47′. Thermometer in the air 29°; in the water 31°.

At one P.M. we saw land south of Coquin's Sound, where Baffin was said to have landed on his return from his last voyage. It bore from E. by N. to South, being about fifty miles distant, according to the judgment of the master, who had frequently seen it; though I thought it not more than thirty-eight miles. We tacked and sounded in forty-five fathoms, about forty miles from the shore. Several large icebergs were passed this day; and at two P.M. we threw over-board a paper similar to the last.

The variation, per Azimuth, was 67° West.

June 4. The wind, from being moderate, became squally at noon. We tacked to avoid the field-ice, and standing E.S.E.

June 4. Lat. 65° 42′ N. Long. 54° 54′ W.

had no soundings, but discovered land from East to S.E. about fifty-five miles distant. We then sounded and found bottom in seventy fathoms. We saw a large iceberg to the W.S.W. a-ground. At two P.M., when we thought ourselves about forty-five miles from land, we sounded in fifty fathoms; and the mud machine brought up a piece of coral. Another copper cylinder, with despatches, was thrown over-board this day. There could be no current, for the ship, notwithstanding she made a point and half lee-way, gained a few miles to windward. As the difference, however, between the larboard and starboard tacks, during four hours, was only nine points and a half, I had reason to believe that the deviation from the real variation of the compass on each tack was considerable; and therefore I made a signal at five P.M. to the Alexander, to observe *Azimuths with the ship's* head in different directions. The result (see Appendix) proved my supposition to be correct; namely, that when the variation is great, the deviation which is more or less in every ship, will increase in no settled proportion, but will be governed by so many causes, that no surer method of ascertaining the course really steered can be adopted, than that of observing the actual variation at the time, according to the course in which the ship is steered. I therefore allowed six points for standing to the North and West; and four points and a half for standing East and South.

His Majesty's birth-day was celebrated with the usual ceremony of hoisting colours and flags, but it blew too fresh for saluting.

During the night the wind freshened very considerably, and continued to blow through the early part of the next day. Se-

veral enormous icebergs were seen to leeward and a few to windward. We had to tack again this day, to escape falling in with the field-ice. At noon, in longitude 55°, 10′, by chronometer, land was seen at the distance of about sixty miles. The Isabella had a narrow escape in attempting to weather a piece of ice, which we just bore up for in time, and, as good fortune would have it, we received no other injury than a slight graze on our weather bow.

June 4.
Lat. 65° 42′ N.
Long. 54° 54′ W.

Having this day gained three miles in latitude, it seemed evident that there could be no current; which appeared surprising, as the wind had blown for three successive days directly down the Straits.

At one P.M., land was descried, about forty-five miles South of Queen Anne's Cape; consisting of mountains like those on the coast of Norway, which might be seen at a distance of sixty or seventy miles. The weather being clear, we had good observations for our chronometers this day: as also for the dip of the horizon by the dip-sector; which we found to be less by 4′ 14″ than in Rio's Tables.

I gave orders that in future, when an iceberg or any remarkable object was seen, it should be exactly set by the compass immediately before and after tacking.

The following day my orders were carried into effect, with respect to a large iceberg, which was seen as we were standing in towards a stream of ice, the main ice being visible at a distance. Before we tacked, at 2 P.M., the berg bore N. by E., but immediately after N. by W., thus shewing the amount of the

June 5. Lat. 65° 46′ N. Long. 55° 10′ W.

deviation of the compass to be equal to two points. We had to encounter with ice several times in the course of the day. In the evening, ice was seen extending from S.E. round to S.W., and as far as N.W. We tacked close in with it, and observed, that when our ship's head was North by the compass, a hummock of ice rising in the field bore North; but when her head was about E.S.E., the same hummock bore N.W.½W., making a difference of three points and a half, which could only have been occasioned by the local attraction of the iron in the ship. Soft green mud was brought up on sounding in three hundred fathoms, during a calm, at seven o'clock. A boat was anchored to try for a current, but none was perceptible.

From Lieutenant Parry's report, the Alexander's chronometers appeared to have gone at a more steady rate than heretofore. A deviation of two points in the Alexander's compasses was supposed to have been occasioned by the side lamps having iron in their construction.

A bottle was this day thrown overboard, containing a paper with the usual remarks. The variation by azimuth, with the ship's head East, was 59° 30′ West.

At midnight the wind came round from the North to S.W., and we steered N.E. by E., allowing five points variation, to make our course true North.

At eight in the morning, Sunday the 7th, several pieces of ice were in sight.

The day was marked with the customary observance of divine worship.

June 7. Lat. 66° 22′ N. Long. 56° 37′ W.

During the forenoon we fell in with a stream of ice, which obliged us to steer E. by N. At half past four we had much difficulty in weathering a point of fixed ice; we succeeded, however, by means of pushing through several streams and packs of heavy ice, in the midst of a considerable swell that added to the danger of our situation. A gale then came on, and we close-reefed topsails. The land was seen about eleven, bearing S.E. by E., at a distance of forty miles; and at midnight we sounded in fifteen fathoms, when I judged we were about seven leagues from the Savage Islands. There was the appearance of a tide, but as it blew hard we had no opportunity of trying its strength.

On the 8th we had strong gales, and cloudy weather, steering various courses along the land, to avoid ice and bergs. We continued to proceed northward, and, at four, made out the Romel Port and Savage Islands. Though we were in fifteen fathoms for four hours, the master thought the land was distant twenty-five miles. At nine, seeing fixed ice from the mast-head extending from the land, we hauled to the northward by compass, that is, making a West course, and steered between the grounded icebergs, among packs and streams of ice. One of the icebergs was three hundred and twenty-five feet high, and twelve hundred feet in length; a torrent of water was running down its side.

Towards noon thick weather came on, and at two we stood to the Southward, in order to avoid the fast ice, which we found extending from S.E., by N.E. to N.W. Before this we had seen Wild Islands, with other land, which we took for Kirby's Island.

June 8. Lat. 68° 10′ N. Long. 57° 26′ W.

During the whole of this day we were plying among drift ice. In the evening we had moderate weather.

I pursued my observation of objects before and after tacking, and found a deviation in the compass of three points in the morning, and two and a half in the evening. At eleven at night, after a fall of snow, the weather cleared up; and the master being of opinion that there was no passage, except close to the Greenland coast, we made sail and pushed through drift ice, making an E. by N. course, as near to the land as the ice would allow.

June 9. The weather continuing moderate, we ran by the edge of the fixed ice, sailing along it till we approached the land, where we found it closely joined; and no water being to be seen over it from the mast-head, we made fast to an iceberg of convenient height. This iceberg was aground near two small islands, which we supposed to lie off North Bay. The weather proving fine and clear, and deeming it expedient to go on shore, I directed Lieutenant Parry, and the Alexander's officers, to bring their instruments on the iceberg; where we all took excellent observations.

Some native Eskimaux came off to us, and we learnt from them that this berg had remained aground in the same place since the last year. They also informed us, that the ice was close all the way from thence to Disco, and that no ship had yet got up thither. We made our informers several presents; hoping, in return, that they would bring off some supplies of water-fowl, *&c.*, for the ships' crews.

The two ships were swung in opposite directions, to ascertain the difference between the compasses on board at each point, with those on the iceberg. June 9. Lat. 68° 22′ 15″ N. Long. 53° 46′ 45″ W.

Various stones, and a stratum of gravel, were found on the iceberg, specimens of which were collected.

Several rare birds also were killed on it, and the skins preserved.

An account of the observations we made in this place will be found, among the rest, at the end of the volume.

During the night we ascertained the rise and fall of water to be four feet in neap tides; and the currents about half a mile an hour on flood and ebb: the ebb setting to the south two hours before high water. The iceberg was neaped four feet, but there were marks of the water having reached four feet higher.

At midnight I had the latitude by the altitude of the sun, 68° 23′; that is, only one mile north of the truth, though the altitude was but 1° 32′.

Early in the morning I took the necessary measures for surveying the place more exactly. The officers, who had been sent to sound and take angles for this purpose, found a harbour, and an excellent road, within the nearest island; but, the ice happening to move from the N.E., the boats were recalled and we cast off from the berg to avoid being beset. A main body of ice appeared to stretch off from the land westward.

Disco was seen for a time from the summit of the iceberg, but was soon obscured in a fog.

June 10. Lat. 68° 22′ N. Long. 53° 46′ W.

As we stood off to the westward, I sent Captain Sabine, Lieutenant Parry, and Mr. Ross, to get the meridian altitude, by an artificial horizon, from an iceberg, which bore nearly due west from the other. This was obtained, and agreed with our midnight latitude, as well as those taken on board.

The weather thickened, and after running three miles south, we discovered a channel of clear water stretching to the west. We forced the ship through the intervening ice, and got into it; and continued all day and night beating to windward, through numerous pieces of ice, which were all drifting to the north and south by the tide. The weather was moderate, but foggy, and in the evening cloudy.

Next day the weather continued moderate, and, seeing no clear water to the northward, we bore up under all sail to the westward. A seal, weighing eight hundred and fifty pounds, which yielded thirty gallons of oil, was shot. A description of this animal, among other subjects appertaining to natural history, will be found in another place.

At noon we fell in with several ships employed in the whale fishery; one belonging to Dundee, the rest to Hull. They had all been successful. From the master of one of these ships, the Brunswick of Hull, we gained intelligence that he had been in the bay to the westward of Disco; where, according to the chart, there is "good anchorage." He had also seen Hare Island, and conjectured there was a good deal of clear sea about it. He had got into and out of South-East Bay, between two floes of ice. The whole bay between Dog and Whale Islands was covered

with ice. The governor of the Whale Islands had informed him, that the ice had broken up, and froze again, no less than three times this season. He had not seen James's Island. He thought that the sea north of Disco might, before the time of our conference, have been clear, and that a passage to the North along the eastern shore was feasible. This ship had only that morning got clear of the ice, in which she and several others had been pent up for fourteen days, and they left four still beset.

June 12.
Lat. 68°14′ 2″N.
Long. 54°15′45″W

This fleet of whalers was running through the channel from whence we had come, in hopes of finding a passage.

Our ships stood on a little, more to the west, and then to the south; but, finding the ice firm, we tacked, and returned towards our old position, which alone appeared to be clear of ice.

At midnight, the weather being very thick, the Isabella was made fast to an iceberg, and the Alexander hauled alongside.

The next morning we had some good azimuths, and had the sun's altitude by reflection on the iceberg; but, as it acquired motion when the wind freshened, it became of no use to us. From the mate of one of the whalers, called the Venerable, who came on board with a chronometer for the Greenwich time, I learnt that his vessel had also been in Disco Bay, with others, some of which were still beset in the ice. He did not think any vessel had succeeded in getting to the north of Disco.

At 3, P. M., it became somewhat clearer; and a breeze springing up from north-east, we cast off from the iceberg, and

June 13. Lat. 68° 28′ N. Long. 54° 13′ W.

sailed to windward among pieces of heavy ice. At four o'clock, we saw the five whalers which had gone to the eastward, ten miles North of the place where we had been: finding no passage, they were returning to the pool in which we then were.

At seven, it grew quite clear; and the island of Disco was plainly seen bearing E. by N., and we saw seven ships beset by ice, in South-East Bay. The ice appeared open to the north-east; and then seemed to turn towards the part of South Bay where these ships were lying.

I buried a bottle, inclosing remarks, in an iceberg, ascertained to be in latitude 68° 15″ north, longitude 54° 10″ west.

The following day we were continually working through quantities of pack ice: some of the pieces being full half an acre in dimensions, and drawing from five to ten fathoms water. Other smaller pieces were so pushed together, as to leave large holes and interstices among them; and through these we were constantly obliged to tack, warp, and tow the ships along, while the six strangers were employed in the same way.

About eleven we got into clear water, having passed the bar of broken ice which extended westward from the land between Savage and North-bay Islands, to the field, or fast ice. At noon, the centre of Disco Island bearing N.E., we had clear weather and clear water as far as could be discerned from the mast-head. Afterwards we had fresh breezes of adverse wind, and in the evening the weather was foggy. Signal guns were fired for the Alexander, which was not in sight.

A weak tide appeared to be setting out of and in Disco Bay. June 14. Lat. 63° 42′ 45″ N. Long. 53° 49′ 45″ W

June 14. The morning was foggy; but at five o'clock it cleared away.

In the afternoon we hoisted our colours and pendant, in compliment to the Danish flag on Whale Islands. It fell calm as we passed close to them. A gun was fired from the Isabella, when the Governor, Inspector Flushe, a respectable looking young man, a native of Norway, came on board; from him we learnt that the late winter had been unusually severe, the sea being frozen near his station early in December, when it was generally frozen about the middle of February. Lovebay, called by the Danes Göd Hauben, and also Waygatt Strait, were still frozen: he had been resident in Greenland eleven years, and had remarked that the severity of the cold increased; he said that he had heard from the Esquimaux, that, on a clear day, land could be seen from the tops of the hills on the opposite side of the straits, near Woman's Islands. They had this year been reduced to great distress for provisions, and had been obliged to kill dogs for food; this was owing to the impossibility of procuring seals during the winter for the Esquimaux to live on. I thanked him for his information, told him of the object of our voyage, and, having made him presents of vegetables and liquor, he took his leave of us, and we stood to the westward.

Whale Island, called by the Danes Kron Prins Island, is in lat. 63° 54′ and long. 53° 30′, and has a good harbour with three channels into it. The inhabitants are the governor, his wife and children, six Danes, and a hundred Esquimaux, who are

June 14. Lat. 68° 42′ 45″ N. Long. 53° 49′ 45″ W

employed during the season to catch seals and whales, but they had not taken any of the latter this season.

We kept under these islands till the tide, which ran about a knot and a half an hour, changed in our favour. At eight in the evening, a fresh breeze rose, and we stood to the west; there was a considerable swell from the N.E.; we sounded in one hundred fathoms, half a mile south of Whale Islands.

The day after we worked with all sail northward; Disco was in sight; and no ice except the bergs were to be seen.

A current was found here, running south (true), a quarter of a mile an hour. In the afternoon we boarded several Greenlandmen, and learnt that none of their ships had been able to penetrate further north than 70° 30′, and that we should fall in with ice in two hours, through which we might sail as far as Hare Island, where it became a solid body.

At six we fell in with loose ice, and continued sailing through it. Firm ice was seen westward.

We proceeded next day, steering along the edge of the main ice; a firm field stretching from north to south; we sailed on between large floes and among loose ice, which, as we advanced, became more numerous, and more closely packed, till at length we had only a narrow and crooked channel for our passage.

At eight we saw a ridge of icebergs, of every variety and shape that can be imagined; I took sketches of some, and

they also appear in the plate which is given of our passage among them. June 17. Lat. 70° 48′ N. Long. 57° 3′ W.

Waygatt, or Hare Island, was now bearing east of us; or, by compass S.E. by S.

No water could be seen at the mast-head either west or north; we therefore hauled our wind, and, in company with our stranger whalers, stood for Waygatt Straits. At eight in the evening our two ships were made fast to an iceberg, about one mile from the true N.E. side of the island. I went ashore, and, ascending the mountain, had a complete view of our situation.

We found here forty-five ships employed in the whale fishery, all detained by the ice; and as there appeared to be little chance of our getting further for some days, I determined to turn our detention to the best account, and prepared for making observations on shore, for which purpose I ordered our observatory and instruments to be landed, and erected tents for Lieutenant Parry, Captain Sabine, and Mr. Ross.

On the 18th, our arrangements being completed, I went on shore at noon to take the sun's transit; but, as the result of all the observations will appear at length in the Appendix, it is only necessary to say here, that the latitude was determined to be 70° 26′ 17″, the longitude 54° 51′ 49″, and the variation 72° 9′ 28″ west at the observatory, making a difference of five degrees in longitude, and thirty miles in latitude, from the situation as laid down in the Admiralty charts.

June 18.
Lat. 70° 26′ 17″ N.
Long. 54° 51′ 49″ W

Here then we rested, having within our view from the mountain, land stretching to the N.E. ½ N. by compass; Jacob's Bight, bearing E. by N.; the Waygatt, Four Island Point, and Disco S.W. by S.; and the North Point of Hare Island N. by E., forming a semi-circle from the land north of Waygatt to the wall of ice westward; with at least seven hundred icebergs in sight. Pools of excellent water were found on the iceberg to which we were attached, from which the ships were supplied. While on shore, parties were occupied in collecting specimens of natural history, and in making geological researches.

I received much useful information from Mr. Muirhead, Master of the Larkins, who, in his last voyage, had been in 75° 15′ N., and two hundred miles only from the land. He thought that our only chance of proceeding northward, depended on keeping close in with the land; and that if we kept to the westward it would be almost impossible to effect our object.

During our stay here, the iceberg to which our ships were fastened, suddenly got afloat, and was carried with great rapidity toward the west; it soon, however, grounded again, and the Alexander remained attached to it, not having followed our example in laying hold of another more secure, which we were drifting past.

The weather here was hot and sultry.

CHAPTER IV.

DEPARTURE FROM WAYGATT—PERILOUS PROGRESS THROUGH THE ICE TO UNKNOWN ISLAND—PASS THE SECOND AND THIRD BARRIERS OF ICE—A BEAR ON THE ICE—ACCIDENT TO THE MASTER OF A WHALER FROM THE ATTACK OF ONE OF THESE ANIMALS—MELVILLE'S MONUMENT, AND MELVILLE BAY DISCOVERED—HARPOONING A WHALE.

June 20.
Lat. 70° 26′ 17″ N.
Long. 54° 51′ W.

WE continued in our several occupations at Waygatt till the 20th of June; and in the evening of that day, the ice having loosened considerably, we determined to cast off from the iceberg, and use every effort to get forward, which we effected by dint of labour, all hands with the boats being employed in towing and warping the ships among packs of ice, through which it was frequently necessary to cut a passage. Many of the whalers followed our example.

At two the following morning we were again completely beset, and carried South-East by the tide; but, after several hours, we managed to proceed slowly by warping, until eight o'clock, when we were again beset, and carried North-West; the boats were then hoisted up, and Sunday service performed. In the afternoon we made fruitless efforts to

June 22. Lat. 70° 35′ N. Long. 54° 25′ W.

pursue our course, being carried to and fro by the tide, surrounded with heavy ice, in which the Isabella underwent extreme pressure; and the Alexander, which had escaped to the shore north of Waygatt, was there hemmed in.

The next morning, at four, a light breeze sprung up from the South-East, and the ice separating a little, we made all sail in order to force through the masses; all the while warping, tracking, and cutting; and at length we succeeded in getting into a channel which led to the North. The Alexander was in company, and at four o'clock we arrived at Four Island Point, where we found the whalers, which had headed us, now stopped by the ice. Here we took advantage of an iceberg, and made fast to it.

I landed, and ascended a hill, but nothing except solid ice was to be seen.

There is here a sort of Danish factory, and some wretched Eskimaux huts, all apparently deserted. We also visited a burying-place, in which we met with the surgeon of a Greenland ship procuring human skulls.

During the night it grew foggy, and at high water the iceberg, to which we were moored, got afloat, and drifted to the West; it was carried among the floes with great violence by the tide, which was running two miles an hour.

At eleven, we found the easterly wind had somewhat cleared away the ice, and when the tide suited, we were towed in a calm about four miles, and there moored to another berg.

ISLAND

Some traces of reindeer were discovered on the shore.

June 24.
Lat. 70° 44′ N.
Long. 54° 24′ W.

June 24. As soon as the tide became in our favour this morning, and the ice appeared open for a few miles, we cast from the iceberg, and re-commenced our labour of towing; all boats were out, and we proceeded along shore, the Master at the mast-head keeping a sharp look out for rocks. The ice obliged us to pass on within a musket-shot of the shore, and close upon some sunken rocks.

At one o'clock, when both ships were in a very dangerous passage, a light wind from the North-West put the ice suddenly in motion; in spite of every exertion, the Isabella was driven into sixteen feet water, and the Alexander was, for a few minutes, actually aground.

The whalers, which were astern, sent their boats and aided, by every means in their power, the exertions of our own men to free the ships from this perilous situation, which was accomplished by running hawsers out to the nearest berg, and heaving the ships through the besetting ice. The conduct of the Masters of the Egginton, Brothers, Ingria, and Thornton, all of Hull, was highly meritorious, and they received, as they deserved, our acknowledgments for their ready services. The first-named of these ships having headed us, was persevering in her course, when she was of a sudden beset by a large floe of ice, and carried on shore; we had then an opportunity of making a return for the kindness we had experienced, and assisted in liberating her.

For the remainder of the day we continued fixed to an ice-

June 25. Lat. 70° 44′ N. Long. 54° 20′ W.

berg, together with about thirty other ships, all anchored in safety within pistol-shot of the shore. I sent a boat to the land with persons to collect specimens of natural history; our situation was then eight miles North of Four Island Point.

Next day the ice appeared around us in a compact body, and no clear water was to be seen from the top of the mountain under which we were moored. The people had some rest, which was much wanted after the incessant fatigues of the several preceding days.

We found that a serious accident had happened on board the Ariel whaler, a boat belonging to her having been crushed by the ice against the ship's side, by which one of her crew was killed, and another much hurt.

On the following morning the ice was in motion. About nine o'clock we were towed to an iceberg two miles east of our former position, and there made fast, letting the ice drive by us. Though it was dead calm where we were, there was evidently a strong breeze in a bay within three miles of us; and at one o'clock, it appearing possible to warp through the ice, we cast off from the berg, and at half-past four, by dint of labour, succeeded in getting into the steady breeze; it was so strong that we could only carry single-reefed topsails; we tacked occasionally, and continued working to N.N.E. (S.E. by compass) till midnight, when we found ourselves close to land-ice near Unknown Island, so called by the Danes.

At half-past one, the Isabella was the farthest North of the forty-one sail, but she was soon impeded by falling in with

a compact body of ice reaching from North to West. We moored, together with twenty other ships, to a field of ice which joined with part of Unknown Island. June 29. Lat. 70° 54′ N. Long. 54° 10′ W.

This morning we had good lunar observations: three sets of mine agreed within a mile of each other, and within 1′ 15″ of the chronometers; we had also eight sets of azimuths, by Kater's compasses on the ice, distant from the ships, and eight sets on board. The ship's head was turned four points at each set till she had been round the compass. The result is shewn, with other observations, in the Appendix.

It was the opinion of the Masters of the neighbouring whalers, that the first breeze of Easterly wind would destroy the ice, and enable us to proceed to the North. Mr. Lawson, of the Majestic, who possesses great local knowledge of the coast, recommended, as our only chance of getting Northward, that we should keep between the ice and Greenland; he promised to follow us as far as he could to bring home our despatches.

The following day, Sunday, the crews attended service, and the whole twenty-four hours were spent in sailing about a basin of ten miles in circumference.

On Monday, the weather being moderate, I ordered the Eskimaux, John Sackheuse, who had accompanied the expedition from England, as interpreter, to go on shore and communicate with the natives.

Lieutenants Parry and Robertson, with other officers, repaired, by my directions, on board the ship Eagle, of Hull,

June 29. Lat. 70° 54′ N. Long. 54° 10′ W.

to inquire into the circumstances of an outrage charged upon her crew, of burning a Danish factory at Four Island Point.

It appeared from their report, that two seamen of the Eagle, in a fit of intoxication, had set fire to one house, and were prevented by the boat's crew of another vessel from committing a like outrage upon a second. Some stores were found on board the Eagle, which the Commander protested he had taken on board for the purpose of giving them up to one of the settlements lower down the Straits. The whole affair, however, had a very equivocal appearance, and it came out that more than one ship had participated in the plunder.

Under these circumstances, I felt it my duty to represent, what I could only consider a wanton outrage, to the Lords of the Admiralty, and to the Danish Governor of Greenland.

The prospect from the mast-head was interminable ice, but that near us was evidently growing weaker, and it continued dissolving the next day.

Our Eskimaux returned with seven natives in their canoes, or kajacks, bringing a small supply of birds.

Their village, lying on the South-side of the bay, appeared to consist of a few huts made of seal skins, sufficient for the residence of about fifty persons. Being desirous of procuring a sledge and dogs, I offered them a rifle musket for one completely fitted, which they promised to fetch; with much honesty of principle, however, refusing to accept the rifle

Kallie, a Woman of Greenland

Native of Opperniwick Lat 73 N°

an inhabitant of N. E. Bay

till they had brought the sledge. They soon returned, bringing the sledge and dogs in a boat managed by five women, dressed in deer skins. The boat was called an umiack, and is rowed by the women standing. I found that two of these women, taller than the rest, were daughters of a Danish resident by an Eskimaux woman. One of the men also was the son of a Dane, and they were all of the colour of Mulattoes. The man had been in charge of the Danish factory which was burnt by the crew of the Eagle, and I therefore gave him a letter to the Governor of Greenland, acquainting him with the circumstance, and describing what I had done.

June 30.
Lat. 70° 56′ N.
Long. 54° 8′ W.

We soon became intimate with our visitors and invited them into the cabin, where they were treated with coffee and biscuit, and their portraits taken. After leaving the cabin, they danced Scotch reels on the deck with our sailors, to the animating strains of our musician.

Sackheuse's mirth and joy exceeded all bounds; and, with a good-humoured officiousness, justified by the important distinction which his superior knowledge now gave him, he performed the office of master of the ceremonies. An Esquimaux master of ceremonies to a ball on the deck of one of His Majesty's ships in the icy seas of Greenland, was an office somewhat new, but Nash himself could not have performed his functions in a manner more appropriate. It did not belong even to Nash to combine in his own person, like Jack, the discordant qualifications of seaman, interpreter,

June 30. Lat. 70° 56′ N. Long. 54° 8′ W.

draughtsman, and master of ceremonies to a ball, with those of an active fisher of seals, and a hunter of white bears.

A daughter of the Danish resident, about eighteen years of age, and by far the best looking of the group, was the object of Jack's particular attentions; which, being observed by one of our officers, he gave him a lady's shawl, ornamented with spangles, as an offering for her acceptance. He presented it in a most respectful, and not ungraceful manner, to the damsel, who bashfully took a pewter ring from her finger and presented it to him in return; rewarding him, at the same time, with an eloquent smile, which could leave no possible doubt on our Esquimaux's mind that he had made an impression on her heart.

After the ball, coffee was again served, and at eight o'clock the party left us, well pleased with their entertainment, and promising to come back with a *skin boat*, an article which, I conceived, might be useful on the ice. I permitted Sackheuse to escort them, chiefly that he might hasten their movements, and search for specimens of natural history.

There was now a considerable change in the appearance of the mountains from the melting of the snow; and in the morning a light breeze arose. I was surprised that our Eskimaux and his countrymen did not appear, and stood towards the village at the foot of the mountain, firing guns, but to no purpose. At six o'clock, the breeze having freshened considerably, I sent a boat ashore to bring him off; when the poor fellow was found with his collar-bone broken, having, with the idea, as expressed by himself, of "*Plenty powder, plenty*

"*kill*," overloaded his gun, and the violent recoil had caused this accident, which prevented his managing his canoe; he was brought on board, and the surgeon reported that it would be some time before he could be cured. July 2. Lat. 70° 55′ N. Long. 53° 53′ W. Var. 79° W.

We had soon the pleasure of seeing the ice begin to move and break up; a channel was found leading towards the Black Hook by the Majestic, of London, and every ship crowded all sail after her.

At eight, we passed Unknown Island, and had a view of the North side of Jacob's, or N.E, Bay, which, like the rest, has many inlets, surrounded with lofty mountains.

A vast number of icebergs occupied the bottom of this bay, having probably been generated there. At midnight we passed the Black Hook, after threading several narrow and intricate channels, and, early in the morning, we found ourselves safely through the second barrier: by mid-day we had made a degree of latitude through a channel apparently void of any current, where only a few icebergs and loose floes were to be seen; and we were then joined through another channel by the ships which we had left behind, as at Waygatt. In this place the neighbouring land was not so mountainous, and the faces of the hills, especially next the sea, were less covered with snow than those to the southward. At four, we were abreast of Saunderson's Hope, and in sight of Woman's Islands, which, by our observations, are more North, and further West than they appear in the Admiralty charts. Firm ice seen to the Westward, induced us to keep near the shore, July 3. Lat. 71° 33′ N. Long. 56° 2′ W.

July 4. Lat. 72° 30′ N. Long. 56° 37′ W.

and we passed an immense chain of icebergs, on one of which a bottle was left, containing a note of our visit.

A remarkable appearance of unequal refraction was observed here in the ships near us, and at a distance. Those within two or three miles seemed to be extended to a monstrous height; while those at double the distance appeared to be drawn out in a horizontal direction, even to flatness, upon the water.

The next day we passed the third great barrier, consisting of large icebergs in vast numbers, which were aground in depths varying from sixty-three to one hundred fathoms. This day we proceeded forty miles.

On the following day we took good observations. The variation on an iceberg was 80° 1′ West; and on board, the ship's head being W. by N. ½ N., it was 98° West, making the deviation 18° on that point of the compass.

On the 7th, after the clearing away of a thick fog, land was seen true East, and we stood in for it, finding it impossible to penetrate further North while keeping far off the land. At eight, we passed in shore near the Three Islands described by Baffin, about nine miles from the land, which formed a bay, within which several smaller islands were seen. We found the water deeper as we neared the shore; first it was sixty-five, then one hundred and fifty, and inside the three islands, one hundred and sixty fathoms. The sun was not visible; but, as we were stopped from proceeding here, Captain Sabine went on shore to observe the dip or inclination

A Remarkable Iceberg.

Sept 1818 Lat 78 & Long 65 W

of the needle; it was, 84° 9′ 15″. Numerous birds of various kinds were found on these islands, and preserved as specimens. A whale was seen about this time, being the first since we entered the Arctic circle.

July 7.
Lat. 74° 2′ N.
Long. 58° 45′ W.
Var. 80° 1′ W.

The greatest part of the two following days was spent in moving backward and forward among the ice, striving in vain to find a way onwards; and in the end, we returned to the Three Islands, where it seemed most probable the ice would open first, as the water deepened.

On the Southernmost island I erected a flag-staff, and had the bearings taken with great exactness, by Kater's compass, when a series of observations were made on the deviation of the magnetic needle. I also went on board the ship Harmony, of Hull, Mr. M'Bride, Master, and made various observations, to determine how far the extraordinary deviation of the needle prevailed on board ships in the whale trade; and I found it still greater than in the Isabella, being full four points.

The next day I stood into Kingston's Bay to determine its position, and in the evening returned to the Three Islands.

On the 13th, after making observations on shore with Captain Sabine, for the chronometers and the variation, we returned on board just as a thick fog was coming on; and the wind having shifted to the N.E., we took advantage of the ice beginning to move, to make sail, continuing to work through, though with great difficulty, from our being enveloped in a fog.

In standing to the West, we fell in with floes of immense

July 15. Lat. 74° N. Long. 58′ W.

magnitude driving South, and were compelled to return toward land. Now and then we got into a bight, and, after beating up several miles, were disappointed by finding no exit, and thus obliged to retrace our way. In this and the following day, notwithstanding impediments, we managed to get forward about fifteen miles: at length, however, we were under the necessity of laying to; and I employed some of my unoccupied time in constructing an instrument for bringing up substances from the bottom of the sea, to supply the place of our machine which, from its defective workmanship, had been found ineffective, particularly in deep water. Our smith's forge was set up, and an instrument made, after my model, on an entirely new principle, which answered extremely well*.

On the 15th, we spoke the ship Zephyr, and learnt that the Three Brothers, of Hull, had been crushed to pieces by the ice, in Jacob's Bay, at the time when we were beset, and in danger there. Fortunately, the crew escaped to the ice, and had been saved by the Ingria.

In the forenoon, observing the water more clear towards the East, we stood round a floe, and beat to the North-East. In the evening the ice appeared to be opening, and we passed a few miles West of the Three Islands. The weather was clear in the night, and the wind light and variable till about four o'clock, when it shifted to the S.W., and we made all sail

* For description, see Appendix and Plate.

for a narrow opening which we saw in the ice, leading, but in a very crooked direction, about N.N.W. (true). Forty sail of whalers were in company, and several large whales were seen in this channel, bending their course North. Some were killed by the harpooners. July 16. Lat. 74° 30′ N. Long. 58° 40′ W.

I obtained a latitude by the altitude of the sun at midnight.

We continued our course with a fair wind up this channel, which grew every hour more and more narrow and intricate; at length two ice-floes closed in upon us, and we were thus completely jammed in, with the tantalizing sight of open water not a hundred yards a-head. The Isabella underwent a very severe pressure, but fortunately without damage, though she was lifted several feet out of the water; the concussion lasted fifteen minutes; the floes then receded a little, and favoured the exertions used to heave her through, which was effected after two hours' labour, by purchases brought from each quarter and bow to the windlass and capstern.

The Alexander, and some of our whaling companions, suffered in the same way, two miles from us to the West.

After being freed from our peril, we ran three miles North, and found a convenient place where we might lay to for our consort; in the meantime a thick fog came on, and we continued firing signal guns, to denote our position. At eight in the evening the Alexander came up, and we again proceeded under all sail. At midnight we reached the end of the

July 17. Lat. 74° 44′ N. Long. 59° 6′ W.

channel where we made fast to a floe, together with three whalers which we had overtaken.

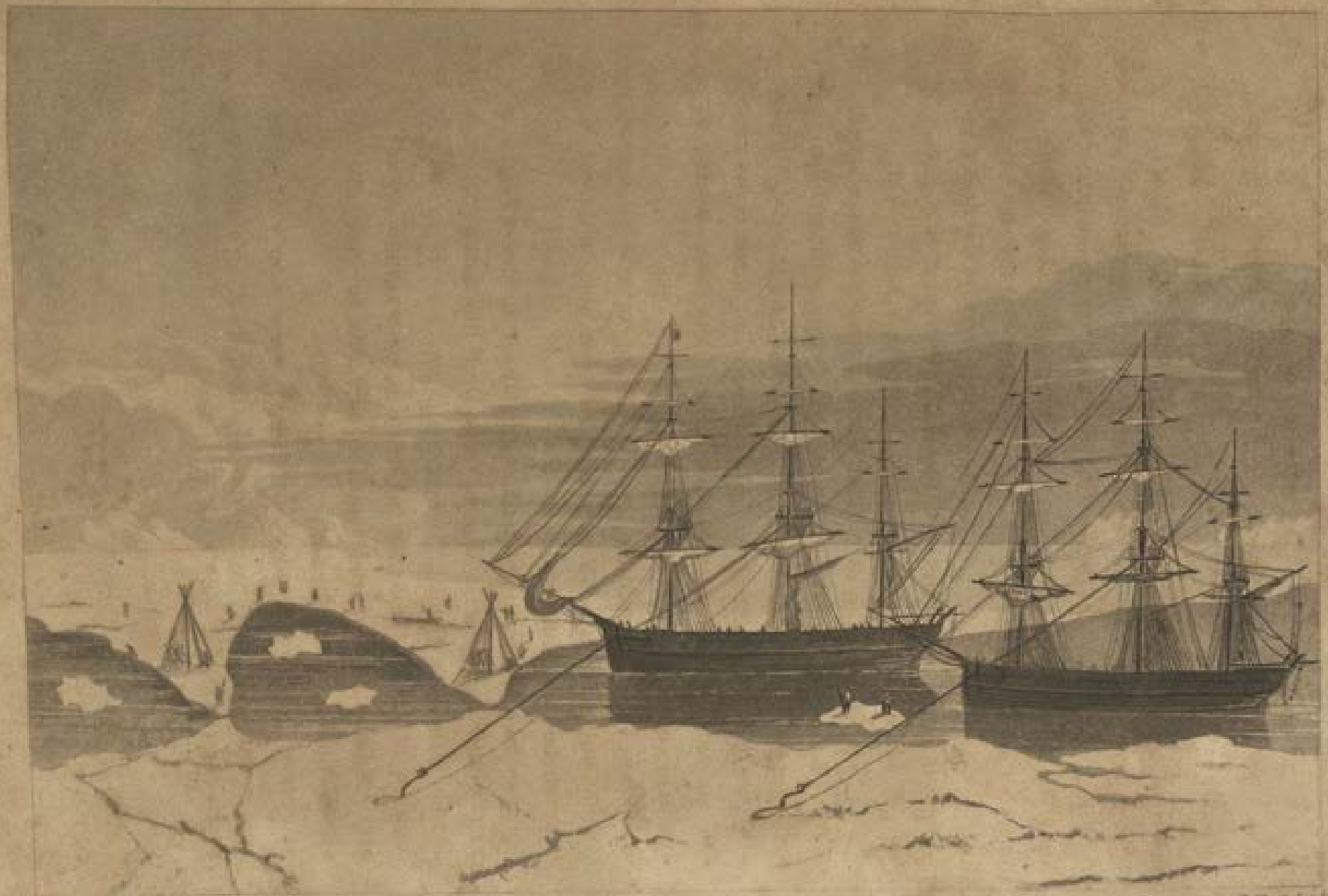
Next morning at six, the ice opening to the North, we endeavoured, by every exertion, to work towards the entrance of the channel, but had no sooner attained our object, than the ice again closed in upon us, and nothing was to be done unless by setting the crews to saw through the floes; but one of them continuing in motion, every effort was, for a long while, rendered fruitless, as it closed again as fast as it was sawed. In the evening a narrow passage was effected, and both the ships were warped through with great difficulty. In passing along another narrow lane, as it were, further on, the Alexander was suddenly closed in; three boats were sent to her assistance; and after two hours' hard work, she was extricated.

We still passed on, but a thick fog overtaking us, we were obliged again to be made fast to a floe, till clear weather should enable us to proceed.

For several days past we could get no distinct sight of land, and had passed almost unnoticed the remarkable headland, called the Devil's Thumb.

July 18. This morning the weather was more clear for some time, and we could see the land, but no passage through the ice could be descried.

In the early part of the day a large bear was seen making towards the ships; one of the Alexander's men, who was



Crews of the Isabella and Alexander Sawing a passage through the Ice

London, Published April 1st 1819 by J. Murray, Albemarle Street.

straying at some distance on the ice, first discovered the animal, and went to meet it; but soon perceiving he was no match for its ferocity, he prudently halted, till Messrs. Beverley, Skene, and Ross, with some seamen, joined in the attack; the bear made off on their approach, and they had a tedious hunt after it in vain. July 18. Lat. 74° 50′ N. Long. 59° 10′ W.

About noon, the weather having cleared considerably, the land, known by the name of the Horse's Head, was visible, and several remarkably shaped rocks were seen among the masses of ice which covered the land as far as the sight could reach.

The next day we continued in the midst of the ice, which was carrying us fast to the Northward.

After Sunday prayers, I went on board the Alexander; in the evening, the ice appeared plainly to be decaying, and changed its course to the Westward. It opened next morning, so as to allow us to warp and tow the ships; towards noon we had a light breeze, and the weather clearing a little, we were able to see the direction of the channel; but, about one o'clock, finding ourselves unable to proceed further, we were again made fast.

On the 21st the fog still continued and intercepted our sight; but the motion of the ice told us that there must be a passage open towards the North; and the wind having got round to the N.W., we made sail, keeping company with the Alexander by the help of signal guns, till four o'clock, when we were again made fast to a floe.

July 21. Lat. 74° 50′ N. Long. 59° 40′ W.

My newly-invented instrument for bringing up substances from the bottom of the sea, being now finished by the armourer, who was an excellent mechanic, I ordered it to be tried; we were in smooth water, moored to the ice. The instrument was lowered into the sea by a whale line of two and a half inches, and in about six minutes it reached the bottom; and, on being hauled up, contained between three and four pounds of mud and stones. The name I gave to this instrument, which is described in an accompanying plate, was the Deep-Sea Clamm.

When the weather cleared, about five o'clock, we had the pleasure of seeing land, and an open passage through the ice leading North; the ship was immediately under sail, and passing several miles in that direction, we fell in with seven whalers which had gone a-head of us while we were beset. We received a message from one of them, the *Everthorpe*, requesting surgical assistance for the master, whose thigh had been very severely lacerated by a wounded bear, which had attacked and dragged him out of the boat. The animal was pierced by three lances before it would relinquish its gripe, when, disengaging itself from the weapons, it swam to the ice, and made off. The poor man, though sadly torn, was happily not considered to be in a dangerous state.

A calm now followed, and we continued all the night towing, sweeping, and warping the ships along. The land which we saw, was determined to be the Horse's Head, and Red Head, in 75° 12′, the highest latitude to which ships

employed in the whale trade were known positively to have penetrated.

July 23.
Lat. 75° 10′ N.
Long. 60° 00′ 15″ W.
Lunar Ob. } 60° 30′ W.
Long. }

The latitude in both ships agreed this day, and the variation taken on the ice, was 87° West.

The succeeding twenty-four hours were wholly employed in tracking through the ice, a proceeding which becomes necessary when the channel is too narrow to allow a vessel to beat or be towed against the wind. In executing this service, the whole ship's company was sent on the ice, and a rope was thrown to them, one end of which was fastened to the head of the fore-mast, for the purpose of keeping the bight clear of the uneven parts of ice, usually found at the edge of the field. The men having hold of the other end, then pulled the ship a-head, marching to music, the musician always leading the way. As it sometimes happened that a hole, covered with snow, or a weak part was found, the men occasionally tumbled in, but as they never let go the rope, they were immediately pulled out. When this accident happened to the fiddler, it afforded the sailors great amusement, and they never failed to exercise their wit on the occasion.

Our labours of warping, towing, and tracking, continued the next day, during which we had to force through several large pieces of ice that blocked up the passage. The deep-sea clamm brought up a considerable quantity of mud from a depth of three hundred and fifty-six fathoms. About noon, in attempting to force between two large floes, we were jammed in, and perceived the Alexander, with two other vessels, a little way

July 24. Lat. 75° 25′ N. Long. 60° 36′ W.

off, in the same circumstances. All hands were vigorously set to work, and the Isabella was freed in about three hours; every assistance was then afforded to relieve the Alexander, with like success; after which we both continued our voyage. About thirty sail of whalers were at this time to be seen from the mast-head, far to the southward, beset in the ice, and still unable to follow us.

We were now twelve miles from the land, which was every where covered with ice, except a few places near the shore, where the sharp top of a rock appeared occasionally piercing through it; the interior being an entire, smooth, but high mass of ice.

In the evening of the 25th, a breeze sprung up, and carried us on about fifteen miles; but finding no passage out of the channel in which we were, we returned towards the south, with the hope of meeting with better success in a channel nearer the land; before, however, we had succeeded in retracing our way, the ice had closed in upon and beset us.

Having now passed all the whalers, except the Dexterity of Leith, I thought it best to provide against the chance of our parting company; and having therefore made up my despatches to this day, I sent them on board that vessel.

We were now arrived at a point, between which and Cape Dudley Digges land had not been seen by former navigators.

The shore, between latitude 75° 12′ and 76°, formed a spacious bay; in the midst of which rose a remarkable spiral rock. This I named Melville's Monument, in grateful remem-

brance of the late Viscount, from whom I received my first commission in His Majesty's navy. To the bay itself I gave the name of Melville's Bay, from respect to the present First Lord of the Admiralty. It is situated between lat. 75° 12′ and 76° 0′, and abounds with whales, many of which were taken by the ships which were persevering enough to follow us. July 25. Lat. 75° 25′ N. Long. 60° 36′ W.

Some small islands were discovered this morning in shore; and Captain Sabine, having offered his services to examine them, set out with Mr. Ross, Mr. Beverley, and several of the men, traversing the ice by a very circuitous route; after exploring them the party returned safely, with several specimens of their natural productions, which are described in the Appendix: I named them after Captain Sabine. A little to the south of these, and nearer the land, four other islands were discovered, to which I gave the name of Browne's Islands, from Henry Browne, Esq., who had interested himself much in the expedition, and to whose advice on various subjects we were much indebted.

On Sunday the 26th, we were immoveably beset by ice; the Dexterity now alone continuing in sight. Divine service was performed, and a sermon, as usual, read to the ship's company. July 26. Lat. 75° 35′ N. Long. 60° 30′ W.

On Monday the sun was completely obscured, notwithstanding which, the thermometer stood at 55°. As the Alexander was lying in a small pool, I thought it a good opportunity to make some experiments on the deviation of her compasses; for which purpose, taking those of the Isabella, I

July 28. Lat. 75° 28′ N. Long. 60° 36′ W. Var. 88° 25′ W.

went on board with Captain Sabine, and had a most satisfactory set of observations, which will be found recorded in the Appendix.

The ice still continued to beset us, and as it was found to be pressing harder, it was deemed advisable to cut docks in it for safety.

On the following day the weather remained the same, the ice becoming still closer. The dock in which the Alexander had taken shelter, not having been cut sufficiently deep entirely to screen her hull, she received several smart shocks, but fortunately experienced no damage. We had soundings in three hundred and fourteen fathoms, bringing up mud and stones. The temperature of the mud was 32°, and of the water at the surface 34°.

Early the next morning the wind increased from the northward, and the ice beginning to move, I finished my letters, and sent them to the Dexterity, that we might take advantage of a channel of clear water that was seen leading to the north-west from our position.

Melville's Monument now appeared the centre of the bay, and an island was discovered a little further north, which, being first seen by Mr. Thom, purser of the Isabella, I named after him. Very high mountains of land and ice were seen to the north side of Melville's Bay, forming an impassable barrier; the precipices next the sea being from one thousand to two thousand feet high, often clear of snow, and exhibiting heaps of ruins accumulated in vast fragments at their bases.

Captain Sabine and Mr. Ross were sent to make observations, and they determined the latitude to be 75° 28′ 20″, and the longitude 60° 36″, by the chronometers. A thick fog then coming on, we were obliged to fire for the purpose of keeping company; the Alexander and we continued beating between the land and sea ice, which had separated, and presented a clear channel to the northward. July 30. Var. 88° 53′ W.

In the morning of the 30th the fog cleared away, and a calm ensuing, all hands were busied in towing the ships along; every advantage, in the mean time, being taken of the light breezes that occasionally sprung up, and the water appearing to be most open near the shore, we bore up a little and stood towards it. Five whalers were in sight to the southward, and we met with many whales.

Land was in sight from N.W. by W. to S.E.

Thick weather came on at midnight and continued till six in the morning, when the fogs cleared away, and enabled us to discover a narrow channel between the land and the sea-ice. We tracked the ships to its edge, and then warped along with the sails clewed up. At noon we had a light air of wind, and set all sail, steering along the land as near as the ice would permit; we then sounded in four hundred fathoms, Thom's Island bearing east, three miles.

The deep-sea clamm brought up some soft mud, with a stone in it.

It being calm, I sent a boat after a whale, which appeared to be particularly marked, being black and white: he was

July 31. Lat. 75° 33′ N. Long. 61° 22′ W.

soon harpooned by the Isabella's boat; the first harpoon striking him on the back a little behind the left fin, and at first appearing to be effectual. The boat was then carried to the edge of the ice, and several lines veered away; but, after holding a long time, it was perceived that he had escaped, but he soon after appeared, about a mile and a half distant, with the harpoon in his back, being then a "loose fish." As he remained near the surface, and appeared to suffer from the wound, the young officers of both ships, who each commanded boats, pulled with emulation to the spot where each expected him to rise, waiting for the moment of his appearance with anxiety. Fortune favoured Mr. James Ross, the animal rising nearest to his boat, in which the harpooner infixed his weapon with a deadly aim, following it by a third and fourth, which made the capture certain. He was now much exhausted, and obliged to remain near the surface, thereby exposing himself to the lancers; the blood, at intervals, flowing from his wounds, and being thrown up in a volume as he rose to breathe. At length, becoming exhausted, he had only strength to make a last but terrible struggle.

The people in the boats aware of their danger, retreated, leaving him to spend his fury on the water, where he was seen rolling and writhing in dreadful agony, lashing the sea from side to side with his tail and fins, till he expired; he then sunk, remaining suspended by the lines of the harpooners who weighed him to the surface, and towed him on board in triumph. We at first took him in tow and attempted to pro-

ceed, but the weather being foggy and calm, little progress was made. July 31. Lat. 75° 33′ N. Long. 61° 22′ W.

The fish, which was a male, measured forty-six feet in length, his bone eight feet six inches, and was considered by the Greenlandmen a payable fish; we now made fast to a floe, and commenced the process of flinching, the term applied to stripping the whale of his blubber. The tail being cut off and hoisted up to the stern, the fish was fastened alongside by the rump and head: two parallel incisions were then made two feet asunder across the fish from the back to the belly, and at the latter (which was next the ship,) a longitudinal cut was made joining the two ends of the first incisions. Thus this part was formed into a flap, through which a hole was made large enough to admit the strap of the main tackle, and into which it was fixed, and hauled tight, the use of this being to turn the body of the fish as the flinching advances. The blubber is first removed from the surface, being cut into quadrilateral pieces, to which tackles are applied, and it is thus easily torn off and hoisted in. The body is then turned by the main tackle attached to the flap or canting piece, until another surface is exposed; the whole being taken on board, together with the whalebone and the jaw-bones, the remains are turned adrift to be devoured by the birds, being termed Krang by the sailors, and smelling intolerably, owing to the effluvia from the intestines, being pierced by the lances. We took on board nine tons of blubber, and sent four to the Alexander, intending to use it for light and fuel, if obliged to winter in the ice. The

July 31.
Lat. 75° 33′ N.
Long. 61° 22′ W.

Bon Accord, of Aberdeen, which was nine or ten miles to the south, sent her boats to this pool which was full of whales, and killed five in the course of the day. A light breeze springing up in the evening, I gave up my intention of examining the body of the whale; we therefore loosed from the ice, made sail, sent our letters by the Bon Accord's boat, and parted with three cheers.

GARDIN HOUSE the RESIDENCE of Wm MOHAT Esqr

CHAPTER V.

CONTINUED PROGRESS THROUGH THE ICE—IMMINENT PERIL OF THE SHIPS—DISCOVERY OF AN UNKNOWN TRIBE OF ESKIMAUX—INTERCOURSE WITH THE NATIVES.

ON the morning of the first of August we had light airs and calms, and were employed working to the north in a narrow channel. Considerable progress was made, and, after divine service, good observations were obtained on the ice, where we were stopped.

Aug. 1. Lat. 75° 44′ N. Long. 61° 20′ W.

The next morning being calm, we discovered a small opening covered with new formed ice, called by the seamen bay-ice. The land opposite to us bore east, and presented a long continued glacier near the sea. At the distance of six leagues the shore jutted out into black and sharp promontories, the main body of ice appearing to be continued from the interior into the sea, and terminating in steep perpendicular cliffs, from which many icebergs appeared at no distant period to have been separated. The ice around us was full of bays and inlets, in which were myriads of that species of sea-fowl known by the name of the little awk, swimming on the water, together with a vast number of whales and sea unicorns.

Aug. 4. Lat. 75° 58′ 56″ N. Long. 64° 37′ 21″ W. Var. 91° 18′ 00″ W.

In the morning the seamen were sent to track the ship, first along a floe, then on the land ice; the bay ice was so strong, that it became necessary to break it, by suspending a boat from the jib-boom; this being constantly rolled by two seamen, raised a wave a-head of the ship, that effected this purpose; thus, gradually making way for her advance. About noon the breeze freshened considerably; we made all sail, and, in one tack, fetched into a channel leading along the land, which now took a W.N.W. direction; in the evening it continued to freshen, carrying us on at the rate of five or six miles an hour, a velocity which we had not experienced for several months.

A very high snowy mountain seemed to form the summit of this immense barrier of ice, which led to a lofty promontory; a little north of which, but projecting considerably, was a cape, which I named Cape Melville, terminating the bay I had named after the First Lord of the Admiralty. Mr. Skene, officer of the watch, discovered three small islands, which I therefore named after him; they were at some distance from the Cape, and were clear of snow. At ten, having rounded the Cape, we were stopped by ice, and made fast to a floe, having Cape Melville to the S.E., and land, apparently forming a cape, to the N.W. This was taken by some of the officers for Cape Dudley Digges; we found the depth of water two hundred and fifty fathoms; the ice appeared to drift to the westward. Here we completed our water from a pool in the ice. At noon we got under sail, and proceeded further

CAPE MELVILLE and MELVILLES MONUMENT.

westward, that we might avoid the floes which were drifting upon us; and, having continued sailing all the day, at midnight we moored to the ice, to which we remained attached until four in the morning, when we were compelled to cast off, in order to escape from an iceberg which we saw bearing directly down upon us. The little awks were exceedingly abundant at this time also, and many were shot for food; as was also a large gull, two feet five inches in length, which, when killed, disgorged one of these birds entire.

August 5.
Lat. 75° 50′ N.
Long. 64° 41′ W.
Var. 90° 18′ W.

The land which had been taken for Cape Dudley Digges now appeared to be an island, and Lieutenant Parry conjectured it was the Wolstenholme Island of Baffin; but, the latitude not agreeing, Captain Sabine and myself thought otherwise. Not less than two hundred little awks were shot this day, and served out to the ships' companies, among whose victuals they proved an agreeable variety, not having the fishy flavour that might be expected from their food, which consists commonly of small shrimps, found very plentifully in this quarter.

The day after, while standing off and on, we had good observations. At half-past two, a small opening was seen, which, together with the motion of the ice, giving us hopes of forcing a passage, I determined to attempt it; and the weather proving fine, the ships were tracked with great labour through about a mile of bay-ice, to the narrowest part of a floe which obstructed our passage into a pool a-head; the usual resort was had to sawing, but our labours were soon suspended

August 6. Lat. 75° 50′ 30″ N. Long. 64° 47′ 00″ W Var. 91° 32′ 00″ W

by the discovery of a passage a little to the eastward. To this, therefore, we warped the ships through the loose and bay-ice, and thus managed to proceed about a mile further.

Here we obtained good observations and the bearings of the land.

As it appeared likely that our people would be at work throughout the night, an extra allowance of provisions was served out; their labours were incessant till half-past one, when, being almost worn out with exertion, I allowed them to rest till five. At half-past six the ice began to move, and the wind increasing to a gale, the only chance left for us was to endeavour to force the ship through it to the north, where it partially opened; but the channel was so much obstructed by heavy pieces, that our utmost efforts were ineffectual; the floes closed in upon us, and, at noon, we felt their pressure most severely. A floe on one side of the Isabella appeared to be fixed, while another, with a circular motion, was passing rapidly along. The pressure continuing to increase, it became a trial of strength between the ship and the ice; every support threatened to give way; the beams in the hold began to bend; and the iron tanks settled together. At this critical moment, when it seemed impossible for the ship to sustain the accumulating pressure much longer, she rose several feet; while the ice, which was more than six feet thick, broke against her sides, curling back on itself. The great stress now fell upon her bow, and, after being again lifted up, she was carried with great violence towards the Alexander, which ship

Perilous Situation of the Isabella and Alexander Aug.t 7.th 1818

had hitherto been, in a great measure, defended by the Isabella. Every effort to avoid their getting foul of each other failed; the ice-anchors and cables broke one after another, and the sterns of the two ships came so violently into contact, as to crush to pieces a boat that could not be removed in time. The collision was tremendous, the anchors and chain-plates being broken, and nothing less expected than the loss of the masts; but, at this eventful instant, by the interposition of Providence, the force of the ice seemed exhausted; the two fields suddenly receded, and we passed the Alexander with comparatively little damage. The last things that hooked each other were the two bower anchors, which, being torn from the bows, remained suspended in a line between the two ships, until that of the Alexander gave way *.

July 7.
Lat. 75° 52′ N.
Long. 64° 42′ W.

A clear channel soon after opened, and we ran into a pool, thus escaping the immediate danger; but the fall of snow being very heavy, its extent could not be seen.

Neither the masters, the mates, nor those men who had been all their lives in the Greenland service, had ever experienced such imminent peril; and they declared, that a common whaler must have been crushed to atoms. Our safety must, indeed, be attributed to the perfect and admirable manner in which the vessels had been strengthened when fitting for service.

But our troubles were not yet at an end; for, as the gale increased, the ice began to move with greater velocity,

* See the Plate.

August 7. Lat. 75° 52′ N. Long. 64° 42′ W.

while the continued thick fall of snow kept from our sight the further danger that awaited us, till it became imminent; a large field of ice was soon discovered at a small distance, bearing fast down upon us from the west, and it thus became necessary to saw docks for refuge, in which service all hands were immediately employed; it was, however, found too thick for our nine-feet saws, and no progress could be made. This circumstance proved fortunate, for it was soon after perceived, that the field, to which we were moored for this purpose, was drifting rapidly on a reef of icebergs which lay aground: the topsails were therefore close-reefed, in order that we might run, as a last resource, between two bergs, or into any creek that might be found among them; when suddenly the field acquired a circular motion, so that every exertion was now necessary for the purpose of warping along the edge, that being the sole chance we had of escaping the danger of being crushed on an iceberg. In a few minutes we observed that part of the field, into which we had attempted to cut our docks, come in contact with the berg, with such rapidity and violence, as to rise more than fifty feet up its precipitous side, where it suddenly broke, the elevated part falling back on the rest with a terrible crash, and overwhelming with its ruins the very spot we had previously chosen for our safety. Soon afterwards the ice appeared sufficiently open for us to pass the reef of bergs, and we once more found ourselves in a place of security.

During the whole of this eventful day, every officer and man on board both ships was alike employed; their zeal and activity

under the severest fatigues, could only be equalled by their patience and fortitude, and they fully justified the opinion I had previously formed what their conduct would be in the hour of danger.

August 8.
Lat. 75° 54′ N.
Long. 65° 32′ W.
Var. 92° 44′ W.

Soon after it cleared away, and we saw the land; and, in a short time made fast to the land-ice, which, uniting with the icebergs, formed a spacious and secure bay. Extra allowances of preserved meat and grog having been served out to the sailors, all the spare hands were employed repairing our damages, which were not very considerable, but the replacing the Alexander's chain-plates was a tedious work.

During this interval, Captain Sabine, with Messrs. Bushnan, Skene, and Beverly, were sent to examine the nearest shore, which appeared six miles distant; it was ascertained to be an island by Mr. Bushnan, and I accordingly gave it his name. They found it utterly desolate, but some piles of stone, resembling in their appearance and arrangement, the usual graves of the Eskimaux, shewed that it had been inhabited; a small piece of the stem of a heath bush was also found, and being burned at one end, was recognised, by Sackheuse, to be the instrument by which they trim their lamps. Very little vegetation was found, but a few specimens of the papaver nudicalis, a ranunculus, and two or three specimens of a short grass were brought on board.

As soon as our party returned, we prepared for sailing; and at midnight a light breeze coming from N.N.E., we loosed, and made sail.

August 9.
Lat. 75° 55′ N.
Long. 65° 32′ W.

The ships had made very little progress, when we were surprised by the appearance of several men on the ice, who were hallooing, as we imagined, to the ships; the first impression was, that they were shipwrecked sailors, probably belonging to some vessel that had followed us, and had been crushed in the late gale; we therefore tacked, hoisted our colours, and stood in for the shore. On approaching the ice, we discovered them to be natives, drawn on rudely-fashioned sledges, by dogs, which they continued to drive backwards and forwards with wonderful rapidity. When we arrived within hail, Sackheuse called out to them, in his own language; some words were heard in return, to which a reply was again made in the Eskimaux, but neither party appeared to be in the least degree intelligible to the other. For some time they continued to regard us in silence, but, on the ships' tacking, they set up a simultaneous shout, accompanied with many strange gesticulations, and went off in their sledges with amazing velocity towards the land. After they had attained the distance of a mile, or more, they halted for about two hours: as soon as this was observed, the ship was tacked, and a boat sent to place an observation-stool, of four feet in height, on the ice, on which various presents, consisting of knives and articles of clothing were left. Either, however, they did not see it, or it did not attract their attention, and a second boat was therefore sent, with directions to leave one of the Eskimaux dogs with some strings of blue beads around his neck, near the same place.

It being necessary to examine if there was a passage in this

place, we took the opportunity of their absence to stand towards the head of the pool, which was about four miles off, trusting that, in the mean time, they would return to the same spot, to which it was also our intention to come back, after examining into the chances of a passage northwards. No opening was, however, found; and we therefore returned, after an absence of ten hours. The dog was found sleeping on the spot where we left him, the presents remaining untouched. A single sledge was shortly after observed at a great distance, but it immediately drove off with great rapidity. August 9. Lat. 75° 55′ N. Long. 65° 32′ W.

Being extremely anxious to communicate with the natives, I caused a pole to be prepared, on which a flag was fixed with a representation of the sun and moon painted over a hand holding a sprig of heath (the only shrub seen on the shore). This pole being carried to an iceberg, mid-way between the ships and the shore, was there erected, and a bag containing presents, with a device of a hand pointing to a ship, painted on it, was fastened to the pole within reach, and left there; the ships, in the meantime, being moored in a convenient situation for observing what might take place.

The gale had now entirely subsided, the weather became beautiful, and the water calm; circumstances that necessarily detained us in our present situation, which, notwithstanding the imperious nature of our orders to proceed with all possible despatch, we should have been unwilling to leave, while any chance of a communication with a people, hitherto unknown, remained.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

Myriads of the little awks surrounded us, and afforded some sport, while they proved no less a treat to the people.

August 10. About ten o'clock this day, we were rejoiced to see eight sledges, driven by the natives, advancing by a circuitous route towards the place where we lay; they halted about a mile from us, and the people alighting, ascended a small iceberg, as if to reconnoitre. After remaining apparently in consultation for nearly half an hour, four of them descended, and came towards the flag-staff, which, however, they did not venture to approach. In the meantime a white flag was hoisted at the main in each ship, and John Sacheuse despatched, bearing a small white flag, with some presents, that he might endeavour, if possible, to bring them to a parley. This was a service which he had most cheerfully volunteered, requesting leave to go unattended and unarmed, a request to which no objection could be made, as the place chosen for the meeting was within half a mile of the Isabella. It was equally advantageous to the natives, a canal, or small chasm in the ice, not passable without a plank, separating the parties from each other, and preventing any possibility of an attack from these people, unless by darts.

In executing this service, Sacheuse displayed no less address than courage. Having placed his flag at some distance from the canal, he advanced to the edge, and, taking off his hat, made friendly signs for those opposite to approach, as he did; this they partly complied with, halting at a distance of three hundred yards, where they got out of their sledges,

and set up a loud simultaneous halloo, which Sacheuse answered by imitating it. They ventured to approach a little nearer, having nothing in their hands but the whips with which they guide their dogs; and, after satisfying themselves that the canal was impassable, one of them in particular seemed to acquire confidence. Shouts, words, and gestures, were exchanged for some time to no purpose, though each party seemed, in some degree, to recognise each other's language. Sacheuse, after a time, thought he could discover that they spoke the Humooke dialect, drawling out their words, however, to an unusual length. He immediately adopted that dialect, and, holding up the presents, called out to them, *Kahkeite*, "Come "on!" to which they answered, *Naakrie*, *naakrieai-plaite*, "No, "no—go away;" and other words which he made out to mean, that they hoped we were not come to destroy them. The boldest then approached to the edge of the canal, and drawing from his boot a knife (see the engraving), repeated, "Go away;" "I can kill you." Sacheuse, not intimidated, told them he was also a man and a friend, and, at the same time, threw across the canal some strings of beads and a chequed shirt; but these they beheld with great distrust and apprehension, still calling "Go away, don't kill us." Sacheuse now threw them an English knife, saying, "Take "that." On this they approached with caution, picked up the knife, then shouted and pulled their noses; these actions were imitated by Sacheuse, who, in return, called out, "*Heigh*, "*yaw!*" pulling his nose with the same gesture. They now

August 10.
Lat. 75° 55′ N.
Long. 65° 32′ W.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

pointed to the shirt, demanding what it was, and when told it was an article of clothing, asked of what skin it was made. Sacheuse replied, it was made of the hair of an animal, which they had never seen; on which they picked it up with expressions of surprise. They now began to ask many questions; for, by this time, they found the language spoken by themselves and Sacheuse, had sufficient resemblance to enable them to hold some communication.

They first pointed to the ships, eagerly asking, "What great "creatures those were?" "Do they come from the sun or the "moon?" "Do they give us light by night or by day?" Sacheuse told them that he was a man, that he had a father and mother like themselves; and, pointing to the south, said that he came from a distant country in that direction. To this they answered, "That cannot be, there is nothing but ice there." They again asked, "What creatures these were?" pointing to the ships; to which Sacheuse replied, that "they "were houses made of wood." This they seemed still to discredit, answering, "No, they are alive, we have seen them "move their wings." Sacheuse now inquired of them, what they themselves were; to which they replied, they were men, and lived in that direction, pointing to the north; that there was much water there; and that they had come here to fish for sea unicorns. It was then agreed, that Sacheuse should pass the chasm to them, and he accordingly returned to the ship to make his report, and to ask for a plank.

During the whole of this conversation I had been employed, with a good telescope, in observing their motions; and beheld the first man approach with every mark of fear and distrust, looking frequently behind to the other two, and beckoning them to come on, as if for support. They occasionally retreated, then advanced again, with cautious steps, in the attitude of listening, generally keeping one hand down by their knees, in readiness to pull out a knife which they had in their boots; in the other hand they held their whips with the lash coiled up; their sledges remained at a little distance, the fourth man being apparently stationed to keep them in readiness for escape. Sometimes they drew back the covering they had on their heads, as if wishing to catch the most distant sounds; at which time I could discern their features, displaying extreme terror and amazement, while every limb appeared to tremble as they moved. Sacheuse was directed to entice them to the ship, and two men were now sent with a plank, which was accordingly placed across the chasm. They appeared still much alarmed, and requested that Sacheuse only should come over; he accordingly passed to the opposite side, on which they earnestly besought him not to touch them, as if he did, they should certainly die. After he had used many arguments to persuade them that he was flesh and blood, the native who had shewn most courage, ventured to touch his hand; then pulling himself by the nose, set up a shout, in which he was joined by Sacheuse and the other three. The presents were then distributed, consisting of two or three articles of

August 10.
Lat. 75° 55′ N.
Long. 65° 32′ W.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

clothing, and a few strings of beads; after which Sacheuse exchanged a knife for one of theirs.

The hope of getting some important information, as well as the interest naturally felt for these poor creatures, made me impatient to communicate with them myself; and I therefore desired Lieutenant Parry to accompany me to the place where the party were assembled, it appearing to me that Sacheuse had failed in persuading them to come nearer the ships. We accordingly provided ourselves with additional presents, consisting of looking-glasses and knives, together with some caps and shirts, and proceeded towards the spot, where the conference was held with increased energy. By the time we reached it the whole were assembled; those, who had originally been left at a distance with their sledges, having driven up to join their comrades. The party now, therefore, consisted of eight natives, with all their sledges, and about fifty dogs, two sailors, Sacheuse, Lieutenant Parry, and myself; forming a groupe of no small singularity; not a little also increased by the peculiarity of the situation, on a field of ice, far from the land. The noise and clamour may easily be conceived, the whole talking and shouting together, and the dogs howling, while the natives were flogging them with their long whips, to preserve order.

Our arrival produced a visible alarm, causing them to retreat a few steps towards their sledges; on this Sacheuse called to us to pull our noses, as he had discovered this to be the mode of friendly salutation with them. This ceremony was accordingly

performed by each of us, the natives, during their retreat, making use of the same gesture, the nature of which we had not before understood. In the same way we imitated their shouts as well as we could, using the same interjection, *heigh, yaw!* which we afterwards found to be an expression of surprise and pleasure. We then advanced towards them while they halted, and presented the foremost with a looking-glass and a knife, repeating the same presents to the whole, as they came up in succession. On seeing their faces in the glasses, their astonishment appeared extreme, and they looked round in silence, for a moment, at each other and at us; immediately afterwards they set up a general shout, succeeded by a loud laugh, expressive of extreme delight, as well as surprise, in which we joined, partly from inability to avoid it, and willing also to shew that we were pleased with our new acquaintances.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

The impression made by this ludicrous scene on Sacheuse was so strong, that some time after he made a drawing of it, being the first specimen we had witnessed of his talents for historical composition; his practice in the art of design, which he had cultivated, in addition to all the other branches of knowledge engrafted on his Eskimaux education, being hitherto limited to copying such prints of single figures, or ships, as he could procure. As he never received any hint, or assistance, in this performance, a correct copy has been subjoined, without the slightest variation from the original, the scale only being reduced to accommodate the size of the work. It cannot, certainly, be regarded as a specimen of art, but it has the

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

merit of being, at least, a good representation of the objects introduced; the defects of composition must be, in a great measure, attributed to the circumstances under which it was drawn; and had he undertaken it on the spot, I have no doubt that he would have paid a greater regard to the properties and disposition of the parts.

Having now at length acquired confidence they advanced, offering, in return for our knives, glasses, and beads, their knives, sea unicorns' horns, and sea-horse teeth, which were accepted. They were then instructed by Sacheuse to uncover their heads, as a mark of good will and respect to us; and with this ceremonial, which they performed immediately, and of which they appeared to comprehend the meaning, our friendship became established.

One of them having inquired what was the use of a red cap, which I had given him, Sacheuse placed it on his head, to the great amusement of the rest, each of whom put it on in his turn. The colour of our skins became next a subject of much mirth, as also the ornaments on the frames of the looking-glasses. The eldest of them, who was also the one that acted as leader, addressing himself to me, now made a long speech, which being ended, he appeared to wait for a reply. I made signs that I did not understand him, and called for Sacheuse to interpret. He thus perceived that we used different languages, at which his astonishment appeared extreme, and he expressed it by a loud *Heigh, yaw!* As Sacheuse's attempt to procure the meaning of this oration seemed likely to fail, and as we were

FIRST COMMUNICATION with the NATIVES of PRINCE REGENTS BAY, as Drawn by CAPT.J.ROSS R.N. and Presented by CAPT. PARRY, And as seen

anxious to get them to the ship as soon as possible, I desired him to persuade them to accompany us; they accordingly consented, on which their dogs were unharnessed and fastened to the ice, and two of the sledges were drawn along the plank to the other side of the chasm; three of the natives being left in charge of the dogs, and the remaining sledges; the other five followed us, laughing heartily at seeing Lieutenant Parry and myself drawn towards the ship, on the sledges, by our seamen. One of them, by keeping close to me, got before his companions, and thus we proceeded together till we arrived within a hundred yards of the ship, where he stopped. I attempted to urge him on, but in vain; his evident terror preventing him from advancing another step till his companions came up. It was apparent that he still believed the vessel to be a living creature, as he stopped to contemplate her, looking up at the masts, and examining every part with marks of the greatest fear and astonishment; he then addressed her, crying out in words perfectly intelligible to Sacheuse, and in a loud tone—"Who "are you? what are you? where do you come from? is it from "the sun or the moon?" pausing between every question, and pulling his nose with the utmost solemnity. The rest now came up in succession, each shewing similar surprise, and making use of the same expressions, accompanied by the same extraordinary ceremony. Sacheuse now laboured to assure them, that the ship was only a wooden house, and pointed out the boat, which had been hauled on the ice to repair; explaining to them that it was a smaller one of the same kind.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

This immediately arrested their attention, they advanced to the boat, examined her, as well as the carpenters' tools and the oars, very minutely; each object, in its turn, exciting the most ludicrous ejaculations of surprise; we then ordered the boat to be launched into the sea, with a man in it, and hauled up again, at the sight of which they set no bounds to their clamour. The ice anchor, a heavy piece of iron, shaped like the letter S, and the cable, excited much interest; the former they tried in vain to remove, and they eagerly inquired of what skins the latter was made.

By this time the officers of both ships had surrounded them, while the bow of the Isabella, which was close to the ice, was crowded with the crew; and, certainly, a more ludicrous, yet interesting, scene was never beheld, than that which took place whilst they were viewing the ship; nor is it possible to convey to the imagination any thing like a just representation of the wild amazement, joy, and fear, which successively pervaded the countenances, and governed the gestures, of these creatures, who gave full vent to their feelings; and, I am sure, it was a gratifying scene, which never can be forgotten by those who witnessed and enjoyed it.

Their shouts, halloos, and laughter, were heartily joined in, and imitated by all hands, as well as the ceremony of nose pulling, which could not fail to increase our mirth on the occasion. That which most of all excited their admiration, was the circumstance of a sailor going aloft, and they kept their eyes on him till he reached the summit of the mast; the

sails, which hung loose, they naturally supposed were skins. Their attention being again called to the boat, where the carpenter's hammer and nails still remained, they were shown the use of these articles; and no sooner were they aware of their purposes, than they shewed a desire to possess them, and were accordingly presented with some nails. They now accompanied us to that part of the bow from which a rope-ladder was suspended, and the mode of mounting it was shewn them, but it was a considerable time ere we could prevail on them to ascend it. At length the senior, who always led the way, went up, and was followed by the rest. The new wonders that now surrounded them on every side caused fresh astonishment, which, after a moment's suspense, always terminated in loud and hearty laughter.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

The most frequent ejaculation of surprise was *Heigh! yaw!* and, when particularly excited by any more remarkable object than the rest, they pronounced the first syllable of the interjection many times, with peculiar rapidity and emphasis, extending wide their arms, and looking at each other at the end of the exclamation, with open mouths, as if in breathless consternation.

Their knowledge of wood seemed to be limited to some heath of a dwarfish growth, with stems no thicker than the finger, and accordingly they knew not what to think of the timber they saw on board. Not being aware of its weight, two or three of them, successively, seized on the spare top-mast, evidently with the view of carrying it off; and as soon as they

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

became familiar with the people around them, they shewed that desire of possessing what they admired, which is so universal among savages. The only thing they looked on with contempt was a little terrier dog, judging, no doubt, that it was too small for drawing a sledge; but they shrunk back, as if in terror, from a pig, whose pricked ears, and ferocious aspect, being of the Shetland breed, presented a somewhat formidable appearance. This animal happening to grunt, one of them was so terrified, that he became from that moment uneasy, and appeared impatient to get out of the ship. In carrying his purpose into effect, however, he did not lose his propensity to thieving, as he seized and endeavoured to carry off the smith's anvil; finding that he could not remove it, he laid hold of the large hammer, threw it on the ice, and, following it himself, deliberately set it on his sledge, and made off. As this was an article I could not spare, I sent a person to recover it, who followed him, hallooing, and soon got pretty near him. Seeing that he must be overtaken, he artfully sunk it in the snow, and went on with the sledge, by which we were convinced that he knew he was doing wrong. The seaman, on finding the hammer, left off the pursuit, and returned, while he went off, and was seen no more that day. Shortly after, another of them, who had received a present, consisting of a small hammer and some nails, left the ship also, and putting his acquisition upon the remaining sledge, dragged it away with him, and disappeared.

Among other amusements afforded to the officers and men

on board, by their trials on the inexperience of the natives, was the effect produced on them, by seeing their faces in a magnifying mirror. Their grimaces were highly entertaining, while, like monkeys, they looked first into it, and then behind, in hopes of finding the monster which was exaggerating their hideous gestures. A watch was also held to the ear of one, who, supposing it alive, asked if it was good to eat. On being shewn the glass of the skylight and binnacle, they touched it, and desired to know what kind of ice it was. During this scene, one of them wandered to the main hatchway, and, stooping down, saw the serjeant of marines, whose red coat produced a loud exclamation of wonder; while his own attitude and figure did not less excite the surprise of our tars, who, for the first time, discovered some unexpected peculiarities in the dress of the natives.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

The three men remaining were now handed down to my cabin, and shewn the use of the chairs, which they did not comprehend, appearing to have no notion of any other seat than the ground. Being seated, we attempted to take their portraits, in which Lieutenant Hopner, Mr. Skene, Mr. Bushnan, and myself, were, at the same time, employed. During this attempt, fearful it might alarm them, we amused them with questions, collecting from them, at the same time, the information we thought it desirable to obtain; and directing Sacheuse to ask those questions which the hurried nature of this visit permitted us to recollect as most essential, and of which the result will appear hereafter. Our drawings being

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

completed, and interrogatories ended, they began to be very inquisitive, asking the use of every thing in the cabin; we shewed them paper, books, drawings, and various mathematical instruments, which produced only the usual effect of astonishing them; but, on being shewn the prints in Cook's Voyage, of the natives of Otaheite, they attempted to grasp them, evidently comprehending that they were the representations of human beings. The sight of a writing-desk, a bureau, and of other wooden furniture, also excited their astonishment, but apparently from the nature of the material only, as they seemed to form no idea of their uses.

They were now conducted to the gun-room, and afterwards round the ship, but without appearing to distinguish any thing particularly, except the wood in her construction, stamping on the deck, as if in evident surprise at the quantity of this valuable material. In hopes of amusing them, the violin was sent for, and some tunes were played; they, however, paid no attention to this, seeming quite unconcerned, either about the sounds or the performer; a sufficient proof that the love of music is an acquired taste, and that it requires experience to distinguish between that and other similar noises. A flute was afterwards sounded for them, which seemed to excite somewhat more attention; probably from resembling more nearly in shape the objects to which they were accustomed; one of them put it to his mouth and blew on it, but immediately threw it away. On returning to the cabin some biscuit was produced, and a piece eaten by Sacheuse before presenting it to them.

MARSHUICK.

MEIGACK.

Arctic Highlanders, Natives of Lat. 77 North. Long. 68 West.

ARCTIC HIGHLANDER.

Erwick a Native of Prince Regents Bay

Lat 76 d. N. Long 65 W.

One of them then took a piece also into his mouth, but almost immediately spat it out with apparent disgust. Some salt meat, that was afterwards offered, produced the same effect. We now also ascertained their names, that of the eldest being Ervick, and that of the two others, who were his brother's sons, Marshuick and Otooniah. Some jugglers' tricks were afterwards exhibited by Mr. Beverly, which seemed to disconcert them, as they became uneasy, and expressed a wish to go on deck. We accordingly accompanied them, and, by pointing to the pieces of ice that were alongside, attempted to discover to what extent they could count, for the purpose of ascertaining the numbers of their nation. We found, however, they could only reckon to ten; and, on inquiring, therefore, if their country possessed as many inhabitants as there were pieces of ice, they replied, "Many more:" a thousand fragments were, perhaps, then floating round the ship.

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

The knives had by this time been examined by the armourer, who thought they were made from pieces of iron hoop, or from flattened nails; we, therefore, asked, if any plank or wreck had formerly been driven on their shore; to which they replied, that a piece of wood with some nails had come on shore, and been picked up. We, therefore, concluded, that the knives which they had left with us had been formed from this iron, and consequently made no further inquiries.

They were now loaded with various presents, consisting of some articles of clothing, biscuit, and pieces of wood, in addition to which the plank that had been used in crossing the

August 10. Lat. 75° 55′ N. Long. 65° 32′ W.

chasm was given to them. They then departed, promising to return as soon as they had eaten and slept, as we had no means of explaining to them what to-morrow meant. The parting was attended with the ceremony of pulling noses on both sides.

After they had reached and crossed the chasm, they were observed by some men, who had been sent to accompany them, throwing away the biscuit, and splitting the plank, which was of teak, into small pieces, for the purpose of dividing it among the party. Soon after this they mounted their sledges, and drove off in a body hallooing, apparently in great glee.

CHAPTER VI.

THE SHIPS OBLIGED TO LEAVE THEIR MOORINGS—FURTHER COMMUNICATION WITH THE NATIVES—DISCOVERY OF PRINCE REGENT'S BAY—AND DEPARTURE FROM IT.

Aug. 11. THE drifting of the ice this morning apprized us of an approaching southerly breeze, and made our situation no longer tenable; we were, therefore, obliged to cast loose, and, after passing through several narrow channels and much loose ice, we advanced seven miles further to the westward, and fortunately found a place of safety under the lee of a very large iceberg which lay aground in one hundred and fifty fathoms. No sooner were both ships fast, than a tremendous floe of ice, with two small bergs in it, came in contact with the large berg, the corner of which was raised several feet; a huge piece of the precipice was broken off by the concussion, and fell with a dreadful crash, breaking the ice below it, and raising a wave that rent the floe in pieces for several hundred yards, and made the ships roll considerably.

August 11.
Lat. 75° 55′ N.
Long. 65° 32′ W.

The ice then took a circular motion, and completely closed the spot which we had left but a few minutes before. During the whole day the ice continued to drift, and a heavy fall

August 11. Lat. 75° 54′ N. Long. 65° 32′ W.

of snow coming on, the land could not be seen: it began, however, to clear at midnight, and a bottle, containing an account of our proceedings, was here left on the floating ice.

During this day we made some attempts to discover from Sacheuse what further particulars he had learned respecting the natives; the hurry of the preceding day having prevented us from conversing so fully with him as we could have wished. Among other less important particulars, we found that they had sent their women and children to the mountains, and that their original intention of coming to the ships was, to request us to go away, and not to destroy them: they also informed him, that they had watched for some time, to see whether the ships would fly to the sun or the moon, from one of which they concluded we must have come. One of their companions had been so much alarmed, that he ran off to the mountains, and had not returned.

We also found, what he had forgotten to tell us before, that the iron was procured from a mountain near the shore. They had informed him that there was a rock of it, or more, (for it could not at this time be ascertained which), and that they cut off it, with a sharp stone, the pieces from which the blades of their knives were made. We now, therefore, had much reason to regret that Captain Sabine, and the party who had, on the morning of the 9th, landed on that which Mr. Bushnan had determined to be an island, had not proceeded further, and that they did not examine the mountains, where it now appeared that this iron was found.

On minute inquiry it had, indeed, been discovered, that the island in question was close to the land, and attached to it by ice; and that the mountain containing the iron rose immediately from it, so as to have rendered this examination sufficiently practicable. We had now, however, passed it a considerable distance, and the weather and the ice both were in a state too unsettled to permit my sending parties to any distance from the ship. August 11. Lat. 75° 55′ N. Long. 65 32′ W.

August 12. The first part of this day was sufficiently clear to allow of our getting good observations, for time, variations, and latitude; and having taken accurate bearings of the land, which I found to form a spacious bay, I named it after the Prince Regent, in commemoration of His Royal Highness's birth-day. It was observed by the usual celebration of hoisting flags and colours, and I also ordered a salute of musquetry to be fired; for, besides the irreparable injury that might be done to the chronometers, by the concussion of great guns, I was desirous that the natives, whose habitations were only six or seven miles distant, should not be alarmed. We continued blockaded by ice, and unable to make any progress the whole day, during the remainder of which we had both rain and snow, with appearance of unsettled weather. Two or three natives were seen at a great distance, but none ventured near the ship. We sounded here in one hundred and fifty fathoms water, and tried the temperature of the water here at various depths, the account of which will be found in the Appendix.

August 13. On the following morning, light airs to the eastward, and a rapid disappearance of the ice, raised our hopes

August 13. Lat. 75° 54′ N. Long. 65° 32′ W.

of proceeding. Early in the forenoon a passage opened along the land ice, and the wind backing to the south, we trusted to find a better place of shelter further on. The berg by which we had been protected having separated in several pieces, we cast off and made sail, and having proceeded ten miles to the westward, we were stopped by a barrier of large floes and bergs, which seemed to extend from the land to the main ice; the icebergs appearing to be aground, and very near to each other. To the northward of them some clear water was to be seen from the mast-head, and, it appeared to me, that the land was trending to the north. Our First Lieutenant and Master saw land from the mast-head, bearing true W.S.W. The atmosphere was extremely clear, and all distant objects seemed wonderfully raised by refraction. The sun passing in azimuth, served to delineate them on the horizon in a distinct and beautiful manner; the reflections of light on the icebergs were peculiarly splendid, the emerald, sapphire, and orange, being the prevailing colours. It was afterwards ascertained, that the land seen by these officers, as well as by several seamen, from the mast-head, must have been at the immense distance of one hundred and forty miles. The ice was now closing in upon us, the weather had every appearance of a gale, and we lost no time in seeking a place of shelter, which we were fortunate enough to find close to an iceberg, that was firmly secured to the land ice. In this there was a small bay, in which we were made fast, and were very soon beset, as we expected.

During the three last days we had seen a vast number of

whales, which sometimes came up alongside of the ship to respire, and did not seem at all alarmed; we saw also some sea unicorns; and in the mornings and evenings the pools of water were literally swarming with little awks, hundreds of which were daily shot. August 13. Lat. 75° 54′ N. Long. 65° 53′ W.

We had not remained long at our new moorings, before we were gratified by the appearance of three of the natives at a distance. Preparations were accordingly made for continuing our intercourse, if they should prove to be the same that had been with us, or for obtaining a parley if they should turn out to be strangers.

The flag-staff, as on a former occasion, was, therefore, pitched at some distance from the ships, and the natives were shortly seen to approach it, without much hesitation or alarm. They were observed to take down the bag, which was attached to it; but after examining the contents, they restored them to their place, and returned to their sledges. Sacheuse was then furnished with presents, and sent to speak with them. He found immediately that they were not our old friends, but other natives, who had received from them a good report of us, together with the history of our being people that lived beyond the ice, and that this had prevented any alarm at our appearance.

On receiving this account, I went with Lieutenant Parry to the place of communication, and performed the ceremonies already described, assuring them of our friendship, and inviting them on board.

August 13.
Lat. 75° 54′ N.
Long. 65° 53′ W.

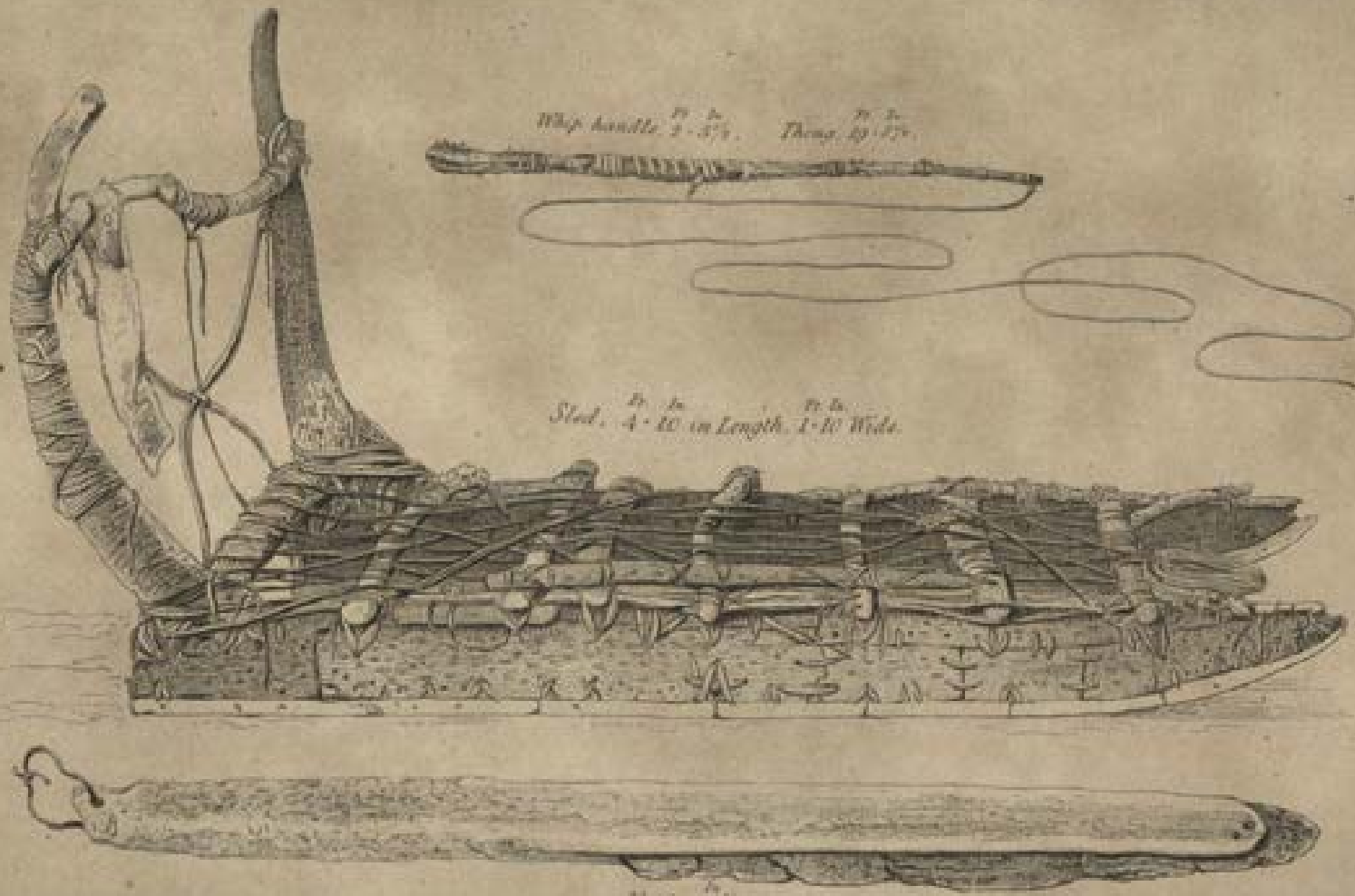
It being proposed that they should drive close to the ship on their sledges, for this purpose the eldest got into his sledge, and we had thus an opportunity of witnessing the mode in which he managed his dogs. These were six in number, each having a collar of seal skin, two inches wide, to which the one end of a thong, made of strong hide, about three yards long, was tied; the other end being fastened to the fore part of the sledge: thus they all stood nearly abreast, each drawing by a single trace, without reins. No sooner did they hear the crack of the whip, than they set off at full speed, while he seemed to manage them with the greatest ease, guiding them partly by his voice, and partly by the sound of the whip. On approaching our sailors, however, they became so terrified, that it was with some difficulty they could be stopped. They were at length fastened to the ice, and one of the younger men, who had come up behind, was left in charge of the whole.

They were much delighted with the presents that were now given to them; but as it appeared that they had seen those we had given to the first party, their surprise was not to be compared to that which we had already witnessed. In return I received a spear, made of the sea unicorn's horn, with a sledge, made chiefly of the bones of the seal, tied together with thongs of seal skin, the runners, or lower pieces, being formed of sea unicorns' horn. In the subjoined plate the form and dimensions of both these articles will be found. I also purchased from them a dog, but with some difficulty, as they seemed very averse to part with it. I chose the one which

A Bone Sled, Dog Whip, Spear & Knife of the Arctic Highlanders.

Spear Ft. 4 · In. 7

Whip handle Ft. 3 · In. 5½. Thong Ft. In. 17.



Sled, Ft. 4 · In. 10 in Length. Ft. In. 1 · 10 Wide.

Knife. In. 15½

104582

London, Published 2nd Aug.t 1819 by J. Murray, Albemarle Street

appeared to Mr. Parry and me the handsomest. In examining them we found that three of them had lost each an eye; these, as the natives informed us, having been accidents from the lash of the whip. The dog was bound, and led on by one of the sailors, and an excellent portrait was made of him by Mr. Skene, which will be found among the engravings. The animal was some time afterwards, unfortunately, washed overboard in a gale *.

August 13. Lat. 75° 54′ N. Long. 65° 53′ W.

The other two natives now accompanied us to the ship, and were much astonished at every thing they saw; but it was evident that they had been prepared to see wonders by our former visitors, as they were by no means so clamorous.

The party consisted of the father, a man about forty years of age, whose name was Meigack, and his two sons: the one who accompanied him, a lad of seventeen, was called Kaweigack, the name of the younger, who remained with the sledge, was not discovered. Meigack was now taken down into the cabin, and informed us he had a wife, three sons, and a daughter; that, in the summer season, they came from Petowack to this place, which was called Ackullowissick, to catch seals and sea unicorns, and to procure iron; and that they returned when the sun left them. He promised to bring his wife to see the ship, but Sacheuse was of opinion that he did not mean to keep his promise, which turned out

* The peculiarities of this variety, and the few circumstances in which it differs from the common Esquimaux dog, will be found in the Appendix.

August 13. Lat. 75° 54′ N. Long. 65° 53′ W.

eventually to be the case. He was now interrogated respecting the iron with which his knife was edged, and informed us that it was found in the mountain before mentioned; that it was in several large masses, of which one in particular, which was harder than the rest, was a part of the mountain; that the others were in large pieces above ground, and not of so hard a nature; that they cut it off with a hard stone, and then beat it flat into pieces of the size of a sixpence, but of an oval shape. As the place where this metal was found, which is called Sowallick, was at least twenty-five miles distant, and the weather very unsettled, I could not venture to send another party to examine it, being uncertain how soon we might be forced from our present situation. I, therefore, offered high rewards, and pressed Meigack to bring us some specimens of it, which he readily promised. His portrait was then taken by Mr. Skene and Mr. Hoppner; and we obtained, by means of Sacheuse, much information, the substance of which will be found in its proper place.

They shewed the same dislike to bread as the others had done; and on some spirits and wine being offered to them, they expressed still greater aversion, putting away the glass as soon as it had reached their lips. A wine-glass excited Meigack's curiosity very much, on which he was immediately presented with one, and when we inquired to what purpose he meant to apply it, he said it was intended for his wife; when he went on deck, he tied it, together with some pieces of iron which had been given him, to the back of his sledge,

appearing to have forgotten that he had sold it to me. Before quitting the ship, we explained to his satisfaction, that he had sold his sledge, and, taking the wine-glass from it, explained that it was easily broken. August 13. Lat. 75° 54′ N. Long. 65° 53′ W.

When on deck, as he was about to leave us, he pointed to his house, which was opposite to the ship, about three miles distant, and could be discerned with the telescope; he informed us that the headland we saw furthest to the north, which was six miles off, was called Innallick, and agreed that on the other side of it there was clear water. Having made both of them presents, consisting of a small harpoon, with some pieces of wood and of iron, I repeated my entreaties that they would bring specimens of the iron, having reason to believe from their account, that the rocks from which they had procured it were masses of meteoric iron. They promised to return when they had eaten and slept, together with more of their countrymen, and the iron I wanted.

It was about three o'clock when they departed, highly pleased, like the former party, with their reception. The ice being covered with small protuberant bergs we soon lost sight of them as they drove away towards the shore, to gain which, we saw that they were obliged to follow a very circuitous route; we easily perceived that this arose from a number of pools and chasms in the ice, as it was evident that we were only three or four miles from the land in a direct line.

During the whole of this day the weather had a very

August 14. Lat. 75° 54′ N. Long. 65° 53′ W.

unsettled appearance, and towards the evening the wind increased to a strong gale, attended with a heavy fall of snow, which, during the night, obscured the land; but, at three, after a shower of rain, it cleared away, and a hard frost succeeded, and the land was again discovered. We were completely beset with heavy ice, but the iceberg under which we had taken shelter defended us from its pressure. In order to determine whether or not any current existed here, and what the depth of water was, and its temperature at different depths, the necessary experiments were made, and soundings were obtained in four hundred and fifty-five fathoms, by the deep-sea clamms, which brought up a quantity of mud; it is worthy of remark, that here, as on the whole of this coast northward of 70°, we found the water deepest when nearest the land, and that no current was found.

August 14. The weather continuing clear, we had good azimuths; I made also several observations on the deviation of the magnetic needle, which will be found in the Appendix. In the mean time boats were sent to procure water-fowl, and, in a short time they returned with three hundred of the little awks, which were, as usual, served to the ship's company.

At two in the afternoon a party of ten natives were seen approaching the ship on their sledges; Mr. Parry, Sacheuse, and I went out to meet them, and among them we were glad to recognise three of those with whom we had first communicated; the one who had purloined the hammer, Marshuick, and Otooniah, together with Meigack, his two sons, and three

August 14. Lat. 75° 54′ N. Long. 65° 53′ W.

others whose faces were new to us. They now came forward, not only without alarm, but without ceremony, both the pulling noses and the shaking hands being dispensed with; and, having with them a seal-skin made into a bag and filled with air, they began to kick it at each other and at us; in this play we heartily joined, to the great amusement of both parties. This inflated seal-skin was what they had been using as a buoy to their harpoon, and we found they had killed a sea-unicorn during the night, about three miles to the south-eastward of the ships; we immediately asked for its horn, to which they replied, it was a female, and that it had none. We now invited them to the ship, and they accompanied us without hesitation. No sooner were they on board than they proceeded both to beg and steal, laying hands on every small piece of wood they met with, and pocketting every nail they could find about the ship. I procured from them a sledge of the same description as the former, and a couple of knives. They also gave me a piece of sea-unicorn's flesh, dried, and which appeared to have been parched, or half roasted, as it bore marks of the fire. I attempted, in vain, to procure another dog from them, but they could not be persuaded to part with him. We had already seen them eat the dried flesh of the sea-unicorn, and had now an opportunity of discovering that they had no scruple of eating raw flesh in any state. One of them who had a bag full of little awks, took out one in our presence, and devoured it raw; but on being asked if this was a common practice, they

August 14. Lat. 75° 54′ N. Long. 65° 53′ W.

informed us they only eat them in this state, when they had no convenience for cookery.

The whole party had now assembled at the edge of the ice nearest the ship, but as she was moored about twenty yards off, it became necessary to embark in a boat in order to get on board; this was accordingly proposed, and after I had gone in and out of it several times, to shew them that there was no danger, they acceded, and stepped in, but with much reluctance and apprehension, and when the sailors made the boat roll from side to side their fears were extreme. After they had got safely on board, and had spent some time, helping themselves (as was before mentioned) to whatever appeared portable, Meigack, his two sons, and the three strangers, were shewn into the cabin, and many questions were put to them, the substance of which will appear hereafter, together with the rest of the information that was collected at different times. We then tried to discover if they had among them any amusements, such as music or dancing; and, after some difficulty, succeeded in persuading two of the strangers, who, we were made to understand, were nephews of Ervik, to give us a specimen of their dancing. One of them accordingly began immediately to distort his face, and turn up his eyes in a manner so exactly resembling the appearance of a person in a fit of epilepsy, that we were convinced this accident had happened, and I was about to call for assistance from the surgeon. I was, however, soon undeceived, as he immediately proceeded to execute, in succession, a variety of extraordinary

August 14.
Lat. 75° 54′ N.
Long. 65° 53′ W.

gestures and attitudes, accompanied by the most hideous distortions of countenance. Like the similar amusements of very different climates, these contained the indecent allusions which are well known to form an essential feature in the dances of many nations, in other respects far advanced in civilization. The body was generally in a stooping posture, and the hands resting on the knees. After a few minutes the performer began to sing "*Amnah ajah**, and in a very short time the second performer, who had been looking at the other in silence, began, as if inspired, to distort his face, and imitate the indelicate attitudes of the first, and soon after to sing as chorus, "*Hejaw, hejaw.* After this had continued with increasing energy for ten minutes, the tune was suddenly changed to a shrill note, in which the words "*Weehee, wehee,*" were uttered with great rapidity. They then approached each other, by slipping their feet forward, grinning, and in great agitation, until their noses touched, when a savage laugh ended this extraordinary performance. Encore! was of course the cry from all beholders, and when it was explained that we wished them to perform a second time, they readily assented, and with much good humour repeated it. Meigack, in the mean time, seeing the attention of every one engaged, took occasion to steal into my state room, and purloined my best telescope, a case of razors, and a pair of scissors, which he artfully concealed in his *tunick*, rejoining the party and the amusements as if nothing had

* This song, which has no interpretation, is described in Krantz's Egede.

August 14. Lat. 75° 54′ N. Long. 65° 53′ W.

happened. He, however, did not escape the vigilance of my steward, who followed him on deck, charged him with stealing the articles, and made him return them, which he did without hesitation. After Meigack went on deck, I had some conversation with one of the dancers, who, we found, was an "*angekok*," or conjuror, the substance of which will be hereafter mentioned. Having found fault with Meigack for not bringing his wife to see us, he eagerly inquired if our nation consisted wholly of men, or if we had women with us. Upon this I shewed him a miniature I had of Mrs. Ross, at which they were much surprised, and for some time seemed to think that the image which presented itself was alive. A thought seemed then suddenly to strike them, that the ladies might be in the other ship, upon which they all set off for the Alexander, which lay alongside of the ice, about two hundred yards from the Isabella; but finding their mistake, they soon returned to us, evidently disappointed. A parcel was, in the mean time, made up, consisting of some articles of clothing, looking-glasses, knives, coins, and a snuff-box, on which was a portrait of His Royal Highness the Prince Regent, as a present to their king, Tulloowah; these were put into a canvass bag; but Sacheuse having inquired of some of the party, respecting the probability of its being delivered, it was found that their propensity to pilfering rendered this project hopeless. I, therefore, altered my intentions, looking forward to the period, when we might ourselves pay him a visit. I now explained to Meigack and his sons, as well as to his companions, how much I was disap-

pointed by his failing to perform the promise he had made me, respecting the iron, and repeating my entreaties to them for some specimens; I shewed them a large harpoon and a lance, also a large piece of a broken spar, all of which I promised to give them in return for it; and, at the same time, assured them, that none of them should be permitted to come on board, nor should any thing be given them until they brought it. This they promised to do, and to return with it, and with some of their wearing apparel, as soon as they could; but we were at the same time informed, that as the mountain was at a considerable distance, they would have to sleep twice before they could return with it. They now mounted their sledges, and drove off in different directions, by circuitous routes, towards the land.

August 14. Lat. 75° 54′ N. Long. 65° 53′ W.

In the evening the weather had a very stormy appearance, the wind continued to blow from the east, and the drifting of the floes had considerably accumulated the ice which formed the barrier to the north, and, at the same time, rendered it doubtful if we could maintain our situation much longer; as it was, therefore, necessary to keep all hands on board, for the safety of the ship, it became impossible for me to detach a party to the shore.

We had snow during the night, and the ice continued to beset us throughout a great part of the following day, till it was at length somewhat thawed by a heavy fall of rain. In the afternoon we were visited by the natives who had been on board the preceding day, with the exception of Meigack

August 15. Lat. 75° 54′ N. Long. 65° 54′ W.

and his family, and also by other two whom we had not seen before. As they brought neither the iron nor the articles of dress they had promised, I gave orders that they should not be permitted to come on board, or to receive any presents. They said they had been at Inmallick (the headland to the northward), to procure stones for the purpose of cutting off the iron from the rock; and they gave us one of these stones, which appeared to be a basalt, and also a little of the dried moss, in a state ready for trimming their lamps. We learnt also, that there was water clear of ice on the northern side of the Cape, which intelligence could not fail to raise our spirits with the hopes of making some progress as soon as we found ourselves able to move from our present position. Finding they were not permitted to come on board, they became noisy and impertinent: but Sacheuse having told them that our *angekok* would cause the ice to separate, and prevent their return if they did not go, they departed, promising to bring the iron without delay.

In the evening the weather moderated, and, at length, it became quite calm; the ice then separated, and so much of it dissolved, that the pool of water in which the ship was lying, increased to an extent of three miles each way. As soon as it was thus cleared, the awks were seen flying in clouds towards it, and soon covered the whole surface of the water. We found that they came to feed on the same insects as the whale, and observed them devouring the beroes and cancers with which the water was crowded. Numerous

whales were also observed engaged in the same pursuit, and here the fishery might be pursued with success. Two boats were despatched from each ship, to procure as many as possible of these birds, for the purpose of preserving them in ice: at midnight our boats returned with about fifteen hundred, having, on an average, killed fifteen at each shot. The boats of the Alexander were nearly as successful; three birds were afterwards daily served to each man, and they were found, among other ways of dressing them, to make excellent soup, not unlike, or at all inferior, to that made of a hare.

August 16. Lat. 75° 57′ N. Long. 66° 22′ W.

Aug. 16. This morning the large iceberg, which had so long defended us from the drift-ice and from the gale, separated from the land-ice, and took a direction to the southward. The wind at the same time sprung up from the N.E., and we made fast to a floe, in order to observe the motion of the ice. After divine service, we had a good meridian altitude of the sun, and some observations on the dip of the needle; we also tried Mr. Troughton's instrument for ascertaining the magnetic dip, but obtained no satisfactory result. At four o'clock the ice had sufficiently opened to warrant us in attempting a passage to the northward. Being very anxious, however, not to quit this place, if possible, without some further communication with the natives, I sent a man to the mast-head to look out, that I might know if there was any prospect of their speedy arrival. Unfortunately none

August 16. Lat. 75° 57′ N. Long. 66° 24′ W.

were to be seen; and feeling it, therefore, my duty to quit this position, and to pursue, without loss of time, the main object of the expedition, I gave to this country the name of the Arctic Highlands; and, casting loose from the ice, made sail from Prince Regent's Bay.

CHAPTER VII.

THE ARCTIC HIGHLANDS—NATURE OF THE COUNTRY—ITS PRODUCE—INHABITANTS—LANGUAGE—MODE OF LIVING—MANNERS AND CUSTOMS—RELIGION.

Situation of the Arctic Highlands.

THE country, to which I have given the name of Arctic Highlands, is situated in the north-east corner of Baffin's Bay, between the latitudes of 76° and 77° 40′ N., and the longitudes of 60° and 72° west, thus extending on the sea-shore for one hundred and twenty miles in a N.W. direction; the breadth, where widest, does not exceed twenty miles, and towards the extremities is reduced to nothing. It is bounded on the south by an immense barrier of mountains covered with ice, which takes its rise in latitude 74° 30′, and extends to 76° north. As far as could be judged from the ships, this barrier is impassable, and in many places the solid ice extends for several miles into the sea from the precipices with which it is connected. The interior country presents an irregular group of mountainous land, declining gradually from the high ridge before mentioned towards the sea, which it reaches in an irregular manner, and still at a considerable elevation; the sea-cliffs ranging from five hundred to one thousand feet

Nature of the Country.

in height. This tract is almost entirely covered with ice, and appeared to be impassable.

On the surface of the land, above the cliffs, a scanty appearance of vegetation, of a yellowish green colour, and sometimes of a heath brown, was to be seen; and, at the foot of the cliffs, similar traces of a wretched verdure were also apparent. Among the cliffs are seen deep ravines filled with snow, through which the marks of torrents were perceptible; these cliffs run out in many places into capes, and are skirted by islands which are clear of sea ice, and therefore washed by the waves. Hence, it probably happens, that the snow does not lie there, and thus they assume the appearance of the verdure just described. This coast is, therefore, the resort of wild fowl in the breeding season; and, from its exposure to the sea winds, must be sooner and longer open than the more southern parts which are narrower; and where the water is shallower, for the same reasons, it must be both sooner and later the resort of seals and sea-unicorns.

The boundary of this region must be placed to the northward of Whale Sound at Cape Robertson; from that cape towards the north the mountains rise immediately from the sea, with a rapid ascent, and form a ridge similar to that which takes its rise at Cape Melville. Thus it is enclosed on all sides, and precluded from all possibility of communication by land with any other inhabitants of this country, should there be any to the eastward of them.

With respect to the geology of this country, it is impossible

Plan of the Part
of
BAFFINS BAY
which was found like
Labrador
DEVILS MOUNTAINS
Whalefish Islands
Cape Dudley Digges
Cape Walsingham
Cape Farewell

to do more than to offer some conjectures, our Naturalist being unfortunately unacquainted with this subject. As far as could be judged, the cliffs appeared, wherever they were exposed, to present an appearance of stratification, the lines of separation of the strata seeming to occupy high angles. The general outline and character of the country also appeared to bespeak the general existence of primary rocks, from the summits of the most distant ridge to the lowest skirts of the strata. This conjecture is strengthened by the nature of the few specimens collected, which, as may be seen in the list, seem almost entirely limited to gniess, a circumstance to be expected from the stratified appearance already described. The granite, it will be seen, is supposed, in the remarks which accompany that list, to be the produce of veins; besides these two substances, there is a specimen of porphyry from Cape Melville, which is, in all probability, a fragment from a vein. At Cape York, it is probable, that some members of the trap family exist, although it is impossible to determine under what form, as a solitary specimen only was found, and that was a rounded pebble; it is a very compact and fine-grained greenstone, of a somewhat porphyritic character, and is the rock used by the natives (already mentioned), for the purpose of cutting the fragments of iron from the masses of that substance.

Nature of the Country.

The most important mineral production of this country, is the iron already described, which is found only at Sowallick, or the Iron Mountains. The circumstances attending this have

Produce of the Country.

already been described; and it is now only necessary to add, that it has been examined by Dr. Wollaston, and found to contain nickel; and that it is probably of meteoric origin, since all the masses hitherto found in different places, which are equally attributed to this, are distinguished by that peculiarity.

The vegetable productions of this country may be said to consist of heath, moss, and coarse grass, a particular account of which is given in the Appendix. There is nothing like cultivation, nor did it appear that the natives make use of vegetable food; scanty and limited as it is, however, it is not without its use; the moss, which is found in greatest plenty, is six or eight inches in length, and when dried and immersed in the oil or blubber of the seal or sea-unicorn, serves for a wick, and produces a comfortable fire for cooking and warmth, as well as for light. The heath and grass serve for food and shelter for the hares and game which, the natives informed us, were in abundance; and the stems of heath tied together make a good handle for the whip, with which they chiefly manage their dogs.

The whale fisheries of this country might, undoubtedly, be pursued with great success, in Prince Regent's Bay, and in Melville Bay. The fish are here not only large and numerous, but, probably from their having never been disturbed, tame, and easy to be approached. There cannot be a doubt but that the whole of this bay might be visited every season, and the circumstance of the ships employed in the fishery returning

*clean**, can only be attributed to their leaving the bay before they ought. This they are often obliged to do for want of provision, and the practice of sending so small a supply, which is too often the case, either from the illiberality or parsimony of the owners, cannot be too severely reprehended; as it is, it not only prevents the masters and crews from standing a fair chance with those better provided, to the ruin of their character and employment, but to the imminent risk of their lives. By remaining twelve or fourteen days longer than the usual time, ships might, with safety and ease, reach these hordes, load, and return when the ice had dissolved.

Produce of the Country.

Besides this, it is more than probable, that a valuable fur trade might be established; numbers of black foxes were actually seen by the officers and men, who were on shore at Crimson Cliffs, and also the traps used by the natives in catching them; and we were informed that the country abounded in them. There can be no doubt that people who are of so harmless a disposition as the Arctic Highlanders, might be easily instructed to collect these skins, which they do not seem to value, or make so much use of as those of the seal and the bear. The ivory of the sea-unicorn, the sea-horse's teeth, and the bear's teeth, may also be considered as articles of trade. All these could be procured for European commodities, such as knives, nails, small harpoon-heads, pieces of

* A term used when they have taken no fish.

iron, wood of any description, crockery ware, and various cheap and useful utensils and tools; both to the great benefit of the merchant, and to that of this secluded race of human beings.

Language of the Arctic Highlanders

It has been already stated, that when the natives of this country were first discovered, their language was unintelligible to Sacheuse; and, at the second interview, he found much difficulty in holding a communication; but, at length, discovered that they spoke the Humooke dialect. Upon inquiry, I found that Sacheuse had been nursed by an old woman, who was a native of Oppernowick, in lat. 73° N., who taught him this dialect. It not only differs materially in the pronunciation of the words, but also in the names of many articles, from the Eskimaux language, as spoken in the southern part of Danish Greenland, and is peculiar to the inhabitants of the northern parts of that country. It was believed, however, that the northern was the most ancient, or most original, language. There is a still greater difference between the dialect of the Arctic Highlanders and the Humooke, the former being spoken very slow, and the names of things, the most common in all countries, being totally different. To illustrate this, I subjoin a list collected from Sacheuse; nevertheless, it will be found, by reference to the said list, that the two languages are radically the same.

They each seem to have the same practice of uniting a number of words, a character equally common among the

languages of the North American Continent; the same method of declining by definite terminations; and they also use the negative, njilak, as a termination to verbs. Their numbers go as far as five, exactly like the southern Eskimaux; but they have no method of marking the day, which, in the south, is done by the tide. They had no names for any kind of fish (except the whale), which they seemed unacquainted with the use of as food. Iron, which is certainly found in the north, and not in the south, is called by both *sowick;* this is also the name of a knife in the south, but in the north it is called *bellaouduk.* The moon in the south is called *pinga*, in the north *kaimut;* but it is known to both nations by the name of *anningack*, which shews they are equally acquainted with the same mythological fable of the origin of the moon.

Language of the Arctic Highlanders

When Sacheuse was desired to ask if they had a king, he pronounced the words *nullikab*, signifying a person in authority; then *nakouack, i. e.*, a strong man, who can kill more seals, and is respected, or dreaded; but they did not understand him. He at last recollected that *pisarsuak* had been used as the name of a chief; they immediately answered in the affirmative, and said his name was *Tulloowak.*

Language of the Arctic Highlanders

A COMPARATIVE LIST

OF THE NORTHERN AND SOUTHERN ESKIMAUX LANGUAGE.

English.	Southern.	Northern.
Woman	Arnett	Arnewerset.
Young Man	Innusholok	Innuquowak.
Harpoon	Tookuk	Olootuk.
Harpoon Shaft	Ermeinuk	Ippou.
Loon (a Bird)	Akput	Pycalhussweet.
Duckskin Shirt	Pinuset	Ater.
Hood of the Dress	Ilpaousuk	Okoukak.
Black Stone of the Lamps	Okekesuk	Ouyorak (any stone)
Hook by which the Lamp hangs	Kelipsuet	Ousuit.
Awks (Birds)	Akpalliarsuk	Akpalliwrshus-weet.
Boiled Meat	Olelie	Osotoclu.
Sledge	Kamoutik	Kamoutipalauit.
Traces for the Dogs	Peluilit	Usintet.

WORDS THE SAME IN BOTH DIALECTS.

English.	Northern Esquimaux.
Man	Innuck.
Men	Innuit.
Son	Eura.
Daughter	Pani.
Eyes	Pisiok.

English.	Northern Esquimaux.
Nose	Kinjack.
Mouth	Kanneck.
Skin	Haminuk.
Sun	Succanuk.
Fire	Innick.
Seal	Pussi.
Dog	Kimuck.
Ice	Licou.
Sea Water	Heniok.
Fresh Water	Hemuck.
No	Naakrie.
Go away	Naakrie-ai-plaite.
Sea-horse	Havick.
Whale	Haphuck.
One	Allausit.
Two	Ailek.
Three	Pinguijuk.
Four	Sissimat.
Five	Tellemat.

Language of the Arctic Highlanders

THE origin of the Arctic Highlanders, or inhabitants of Prince Regent's Bay, is a question as yet involved in peculiar obscurity. They exist in a corner of the world by far the most secluded which has yet been discovered, and have no knowledge of any thing but what originates, or is found, in their own country; nor have they any tradition how they came to this spot, or from whence they came; having, until the moment of our arrival, believed themselves to be the only inhabitants of the universe,

Origin of the Arctic Highlanders

Origin of the Arctic Highlanders

and that all the rest of the world was a mass of ice. It is generally believed by the natives of South Greenland, that they are themselves descended from a nation in the north; and the moment they were discovered, Sacheuse exclaimed, "these "are *right* Eskimaux, these are *our* fathers!" This supposition is confirmed by a tradition in *Egede's Greenland*, where a story is related, as believed by every Eskimaux, that a party of savages having come from the north to the establishments at Woman's Islands, murdered the Eskimaux stationed there; the accounts of which having reached their friends in the south, a party went against them, and destroyed them in return. The similarity of the language proves they are the same people; and it appears most probable, that South Greenland has been peopled from the north, and that the northern parts of Baffin's Bay have been, in the same manner, originally peopled from America. It has been long ascertained, that the land discovered by Davis, on the west side of Davis' Strait was inhabited; and where we landed, on the west side in latitude 70°, there were evident marks of its recent occupation. The only parts which appeared to be uninhabitable, were between Whale Sound and Lancaster Sound, a place, no doubt, of very considerable extent; but which, with a sledge on the ice, would be only three days' journey. Their having no knowledge of canoes is easily accounted for, by their total want of wood, and the very short time that canoes could be used in their seas.

Dress of the Arctic Highlanders

THE Dress of the Arctic Highlanders consists of three pieces, which are all comprised in the name of "*tunnick.*" The upper one is made of seal-skin, with the hair outside, and is similar to the woman's jacket of the South Greenlander, being open only near the top, so as to equal the size of the wearer's face. At the bottom it is formed like a shirt, but terminating in a tongue before and behind, the hood part being neatly trimmed with fox's-skin, and made to fall back on the shoulders, or cover the head, as required. This is lined, in general, with eider-duck, or awk skins; and this lining being close at the bottom, and open near the breast, serves as a pocket. The next piece of dress, which scarcely reached the knee, is also uncomfortably small in the upper part, so that, in stooping, the skin is exposed. This is made of bear or dog's skin, and fastened up with a string. The boots are made of seal-skin, with the hair inwards, the soles being covered with sea-horse hide; they reach over the knees, and meet the middle part of the dress. The whole of these are made by the women; the needles used being of ivory, and the thread is of the sinews of the seal, split: the seams are so neat that they can scarcely be distinguished. They informed us, that in the winter, or as the weather got colder, they had a garment of bear-skins, which they put on as a cloak; but this we did not see, nor were we able to persuade them to spare any part of their dress.

The Arctic Highlanders are of a dirty copper colour, their stature is about five feet, their bodies corpulent, and

Description of the Arctic Highlanders

their features much resembling the Eskimaux of South Greenland. The following description of Ervick, of whom so much has already been said, and whose portrait is given at full length, and of his nephews, Marshuick and Otooniah, will give a just idea of the whole tribe of these people. This man, who appeared to be about forty years of age, measured five feet one inch in height, his skin being of a dirty copper colour, rather darker than the generality; his face was broad, his forehead narrow and low, with some wrinkles, and the nose small and strait; the cheeks full, round, and ruddy, even through the oil and dirt which covered them; his mouth was large, generally half open, and shewing that he had lost his fore-teeth, the remainder of which were, however, white and regular; his lips were thick, particularly towards the middle; his eyes small, black, oval, and very approximate; the hair was black, coarse, long, and lank, and had certainly never been cut or combed; his beard and mustachios, which were suffered to grow, were scanty, and confined to the upper lip and chin; his body was fleshy, inclining to corpulence; the hands thick and small, fingers short, and the feet very short and thick. Though good humour was fully expressed in his countenance, it also bore that indescribable mixed appearance of ignorance and wildness, that characterizes all uncivilized people. In walking, he seemed inactive, and it was with much difficulty he got up the ship's side.

Marshuick appeared to be twenty-three years of age; he

was not so dark as his uncle; his features were so pleasing, that he got the name of the "handsome native;" he was not so corpulent as the rest, but, in every other respect, his appearance was the same. Description of the Arctic Highlanders

Otooniah was about twenty-one years of age; his features were much freckled, and we recognised a likeness between him and a Greenlander we had seen in N.E. Bay: both these, who were brothers, had white regular teeth, and were five feet high. The man, who stole the hammer, was by much the tallest, being five feet six inches and a half; his skin was not so dark as Ervick's, the nose was large and aquiline, the forehead very narrow, and lower part of his face broad; the body muscular; the features savage and dishonest; he had less beard than the rest, but was in other respects the same.

The greatest number of natives seen was about eighteen; many attempts were made to discover the numbers of the tribe, but without success, as they could reckon no further than five, and could therefore only say, "plenty people," pointing to the north; and, it must be recollected, that this was only a party detached from the main body.

On the subject of Religion in the Arctic Highlands.

Ervick, being the senior of the first party that came on board, was judged to be the most proper person to question on the subject of religion. I directed Sacheuse to ask him, if he had any knowledge of a Supreme Being; but after trying every word used in his own language to express it, he could not make him understand what he meant. It was distinctly ascertained that

On the subject of Religion in the Arctic Highlands.

he did not worship the sun, moon, stars, or any image, or living creature. When asked, what the sun or moon was for, he said, to give light. He had no knowledge, or idea, how he came into being, or of a future state; but said, that when he died he would be put into the ground. Having fully ascertained that he had no idea of a beneficent Supreme Being, I proceeded, through Sacheuse, to inquire if he believed in an evil spirit; but he could not be made to understand what it meant. The word "angekok" which means a conjuror, or sorcerer, was then pronounced to him, in the South Greenland Eskimaux language. He said, they had many of them, that it was in their power to raise a storm, or make a calm, and to drive off seals, or bring them; that they learned this art from old Angekoks, when young; that they were afraid of them; but they had generally one in every family. Mejgack gave precisely the same answers, and had the same notions, but he was not so intelligent as Ervick. Finding that Otooniah, the nephew of Ervick, a lad of eighteen years of age, was a young *angekok*, I got him in the cabin by himself, and, through Sacheuse, asked him how he learned this art. He replied, from an old *angekok*; that he could raise the wind, and drive off seals and birds. He said that this was done by gestures and words; but the words had no meaning, nor were they said or addressed to any thing but the wind or the sea. He was positive that in this incantation he did not receive assistance from any thing, nor could he be made to understand what a good or an evil spirit meant. When Ervick was told that there was

an omnipotent, omnipresent, and invisible Being, who had created the sea and land, and all therein, he shewed much surprise, and eagerly asked where he lived. When told that he was every where, he was much alarmed, and became very impatient to be on deck. When told that there was a future state, and another world, he said that a wise man, who had lived long before his time, had said, that they were to go to the moon, but that it was not now believed, and that none of the others knew any thing of this history; they believed, however, that birds, and other living creatures, came from it. Although there is certainly no proof whatever that this people have any idea of a Supreme Being, or of a spirit, good or bad, the circumstances of their having conjurers, and of their going to the moon after death, are of a nature to prevent any conclusion from being drawn to that effect; especially, as it must be evident, that our knowledge of their language was too imperfect to obtain the whole of their ideas on the subject.

On the subject of Religion in the Arctic Highlands.

We had not an opportunity of visiting the habitations of the Arctic Highlanders, nor did we see them but at too great a distance to form a judgment either of their construction or comforts; but, from the description given by the natives, they appeared to be situated always near the sea-side, on a spot the least liable to be overwhelmed by snow. These houses are built entirely of stones, the walls being sunk three feet into the earth, and raised to three feet above it; the roof is in

Mode of Living and Customs of the Arctic Highlanders

Mode of Living and Customs of the Arctic Highlanders

the form of an arch, and such holes as would admit air are filled up with mud; they have no windows. The entrance is by a long, narrow, and nearly under-ground passage. The floor is covered with skins, on which they sit or sleep; several families living in one house, and each family has a lamp made of hollowed stone, which is suspended from the roof, and in which they burn the oil, or rather the blubber of the seal and sea-unicorn, using dried moss for a wick; fire is produced from iron and stone. This lamp, which is never extinguished, serves for light and warmth, and, at the same time, for cooking; and we ascertained that they had a method both of boiling and roasting, or scorching their meat, which occupation falls entirely on the women. They eat all kinds of animal food, but the seal and sea-unicorn * are preferred, as being more

* The sea-unicorn, *monoceros*, *narwhal*, or *unicorn-fish*, has been found twenty-two feet long, and twelve round, head nearly one-fourth the length of the body, round, small, and terminates in an obtuse rounded snout. Mouth small, no teeth, but a large wreathed tusk, or horn; sometimes two, and often ten feet long, proceeds from his upper jaw, diverging to one side, and tapering towards the point. Eyes and ears very small; one respiratory orifice in the back of the head; back broad, convex, tapering towards the tail, which is horizontally placed, and is divided into two obtuse oval lobes. Body of an ovoidal shape, no dorsal fins, but a high ridge, or projection, extends from the blow hole towards the tail, and gradually diminishes in height as it approaches the tail: two pectoral fins; colour generally cinereous, dappled with numerous multiform black spots; belly a shining white, and soft as velvet to the touch.

Molusca and *actinea* were their general food; the unicorn fish swims with great swiftness, but, like other cetaceu, cannot remain long under water without respiring; though seemingly harmless, he is a dangerous enemy to the whale, and has been known to dart his horn into the side of a ship. (*First Voyage*, p. 335.) The oil is of a superior quality, and the horn was long the subject of a kind of

oily and agreeable to their palates. Dogs are also esteemed excellent food, and are bred as live stock, as well as to draw the sledge; but they are only eaten in winter, in times when no other food can be obtained. The men catch the seals, either when they are asleep, or by lying down near the holes in the ice, and making a great noise, which brings them to the surface. When the animal appears they imitate his cry, or grunt, and by this means induce him to come on the ice and approach them; when within reach, they strike him on the nose with a spear made of sea-unicorns' horn, and soon despatch him. The sea-unicorn is taken by a harpoon, the barbed part of which is about three inches long, having a line attached to it of about five fathoms in length, the other end of which is fastened to a buoy of a seal's skin made into a bag and inflated. The blade is fixed on the end of the shaft in such a manner that it may be disengaged from the handle after it is fixed in the animal, and the shaft is then pulled back by a line which is tied to it for the purpose.

Mode of Living and Customs of the Arctic Highlanders

The animal immediately plunges, and carries down with him the seal-skin buoy, which fatigues him. As he must come up in some pool to respire, like the black whale, he is followed

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superstitious respect. It was said to be efficacious in the cure of several distempers, and was prized as being of the very highest value. The Margraves of Bareuth possessed one which cost them six hundred thousand rix-dollars; and the Kings of Denmark have a throne formed of it, which is esteemed more valuable than if composed of gold. The horn is of a finer texture, and takes a better polish, than the elephant's.—*Laing's Voyage to Spitzbergen.*

Mode of Living and Customs of the Arctic Highlanders

and despatched with the spears; as this animal frequents the chasms and pools in the ice, he falls an easy prey to the natives.

We could not learn the precise manner in which they kill the bears, but they informed us that they attacked them in the water. The foxes and hares are taken in traps, made of stones, resembling a small grotto, and having a narrow entrance which is closed by a stone that falls down when the animals enter to take the bait left within it. The natives described to us an animal which they called *humminick*, but said it was too large for them to kill; it has, by their account, a horn on its back, and is very swift, I therefore suppose it must be a reindeer. They have also an animal known to both countries by the name of *ancarok*, but which I cannot find to be mentioned by writers on Greenland. Sacheuse says, it is not uncommon about North-east Bay and Disco Bay, where its cry is continually heard at night. It is very wild, and can seldom be approached, being very active and fierce; the Eskimaux are afraid of it. He says it resembles a cat, but is three times larger, that it moves by jumping more than by running, and lives in holes and caverns in the rocks; that it eats hares and partridges, which it lies in wait for, and catches by springing on them. The hares, seen by our people, were white, and are described in the Appendix. The foxes were generally black, but they were also seen both of a white and of the common colour which they have in southern countries; unfortunately none of them were taken, and therefore they cannot be particularly described. The dogs which

Mode of Living and Customs of the Arctic Highlanders

are the only animals that have been domesticated by the Arctic Highlanders, are of various colours, but chiefly resembling that given in the plate; they are of the size of a shepherd's dog, they have a head like a wolf, and a tail like a fox; their bark resembles the latter, but they have also a howl like the former.

An Arctic Highlander never hunts, or travels to any distance, but on his sledge, and he always carries with him his spear and knife; from the rapidity with which they seem to drive, it may be fairly conjectured, they could travel fifty or sixty miles a day, which, indeed, is known to have been done by the natives of South Greenland. The habits of this people appear to be filthy in the extreme; their faces, hands, and bodies, are covered with oil and dirt, and they look as if they never had washed themselves since they were born. Their hair was matted with filth, yet they seemed very tenacious of it; for, when a small piece was cut off from the head of one of Meigack's sons, both he and his father were much displeased, and shewed great uneasiness until it was returned, when it was carefully wrapped in a piece of seal-skin, and put by the former into his pocket. We learned that each man took one wife, when he was able to maintain a family; if she had children, he took no other, nor was she permitted to have another husband; but, if otherwise, the man may take another wife, and so on a third, until they have children, and the women have the same privilege. Ervick spoke very affectionately of his wife, who he said was a good one, because

Habits and Customs of the Arctic Highlanders

she had six sons; when they took, or begged any fanciful thing, as a looking-glass or picture, they all said it was for their wives. They also shew much respect to their mothers; for, one of them said, he would let me have his sledge, and another would have parted with his jacket, but his mother would be displeased. The dress of the women is, from what we could collect, the same as that of the men. We could not make out whether they lived to a great age or not, for the old people had been sent to the mountains, or concealed on our approach, and we never saw them, nor did we see any of the children. I asked both Ervick and Meigack if they would spare one of their sons; to which they answered, they would not; nor could either of them be tempted by any presents to consent to part with a child. Indeed, none of them were willing to leave their country; they seemed most happy and contented, their clothing was in good condition, and very suitable to the climate, and by their account, they had plenty of provisions. They all acknowledged Tuloowah as their king, represented him as a strong man, as very good, and very much beloved; the name of his residence was Petowack, which they described to be near a large island, which could be no other than Wolstenholme island. He had a large house built of stone, which they described to be nearly as large as the ship: that there were many houses near it, and that the mass of the natives lived there; that they paid him a portion of all they caught or found, and returned to this place whenever the sun went away, with the fruits of their labours. They could not be made to under-

stand what was meant by war, nor had they any warlike weapons; and I gave strict and positive orders that no fire-arms, or other warlike weapons, should be shewn them, or given to them on any account, and when they were with us all shooting-parties were called in. They seemed to have no diseases among them, nor could we learn that they died of any complaints peculiar to this or any other country. We saw no deformed persons among them, nor could we find out that there were any; we did not see any of the women or young children, but had we been able to remain I have no doubt but they would have visited us.

Habits and Customs of the Arctic Highlanders

Such is the substance of what we collected in our short intercourse with this interesting people, which may appear in some points to be defective; but it must be recollected that the ships were always in motion, principally from the state of the weather, which rendered it impossible for us to send parties on shore after the first day. We still had daily hopes of obtaining a more complete access to them, even to the last moment when we were obliged to leave this part of the coast; and in proceeding northward from our last station, had still the prospect of visiting their king, and filling up the measure of information respecting them. These hopes were ultimately disappointed, as will appear by the events that will be related in the ensuing Chapter.

CHAPTER VIII.

PASSAGE THROUGH THE LAST BARRIER—DISCOVERY OF CAPE YORK—CRIMSON CLIFFS AND COLOURED SNOW—CAPE DUDLEY DIGGES—FORMATION OF AN ICEBERG—PETOWACK—WOLSTENHOLME SOUND—OBSERVATIONS ON THE ATMOSPHERE.

August 16. Lat. 75° 57′ N. Long. 66° 24′ W.

THE ships, being again under sail, with more cheering prospects before them, proceeded along the margin of the ice, where it appeared attached to the land, with a fine breeze from the north. In about two hours we arrived at the barrier of icebergs, which has been before described as stretching from the northernmost land in sight towards the west. We soon discovered that these masses were aground on each side of a shoal, in which are found, in some places, about forty fathoms water. We passed through many intricate and narrow channels; and, at four o'clock, we rounded this cape, which I named after the Duke of York, in commemoration of the birth-day of His Royal Highness. Views of it, from east and west, were taken by Mr. Bushnan, and will be found among the engravings. The land, from this cape, took a W. by N. direction; we continued to steer along it, at the distance of four miles, and, for the first time, saw the sea wash the rocks.

August 16.
Lat. 75° 57′ N.
Long. 66° 24′ W.

The wind being light, a boat was sent to the shore to look for the habitations of the natives, to make observations on the rise, fall, velocity, and direction of the tide, and to procure specimens of natural history; in the mean time soundings were obtained, and shells, and other substances, brought from the bottom of the sea, in fifty fathoms. At midnight the boat returned, with various specimens of grass, moss, and stones. The officers reported that the water was deep close to the shore, which was very steep and rocky. The tide fell two feet during the three hours they were on shore, its velocity was about one mile per hour, the ebb running to the eastward. The party did not fall in with any of the natives, nor did they succeed in discovering their habitations, but they saw several of their stone traps, a description of which has been given. Many black foxes were seen by the officers, and some of the party also saw white and red coloured ones; they had several shots at them, but were not fortunate enough to kill one. The Alexander's boat, which went on shore, was equally unsuccessful in obtaining a specimen of these animals.

August 17. We continued our course along the land, at the distance of five or six miles, among numerous bergs and pieces of loose ice. By the former, which were aground in fifty fathoms, we found that the tide began, about ten o'clock, to carry us to the eastward; I therefore made fast to a berg, and, by the log, found the current running one knot per hour. It was now calm, but a breeze soon sprung up, and we only remained fifteen minutes in that situation, after

August 17. Lat. 75° 54′ N. Long. 67° 15′ W.

which we made sail, and found we could do rather more than stem the tide. This morning being clear, I sent to an iceberg to obtain azimuths, but owing to the attraction of the boat, which had ice anchors on board her, no satisfactory result was obtained; the latitude and longitude, however, of Cape York was accurately determined. We now discovered that the snow, on the face of the cliffs, presented an appearance both novel and interesting, being apparently stained, or covered, by some substance, which gave it a deep crimson colour. Many conjectures were afloat concerning the cause of this appearance; it was at once determined it could not be the dung of birds, for thousands of these, of various descriptions, were seen repeatedly sitting on the ice, and on the snow, but without producing any such effects.

At two P.M. it fell nearly calm, and I sent a boat with Mr. Ross, midshipman, and Mr. Beverley, assistant surgeon, and a party, to bring off some of the snow, and to make what remarks they could on the circumstances attending it, as also to procure specimens of the animal, vegetable, and mineral kingdoms, and to ascertain if this part of the country was inhabited. The boat arrived at the shore, nearly at low water, and found the tide had fallen nine feet. The party remained two hours on shore, and found the cliffs were not inaccessible at the spot where they landed, but they did not get to the top, being recalled in consequence of a breeze springing up. They were equally unsuccessful, in meeting with natives, or their habitations, as in procuring specimens of

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CRIMSON CLIFFS.

the black fox, many of which they saw and fired at, but without effect. They found that the snow was penetrated even down to the rock, in many places to a depth of ten or twelve feet, by the colouring matter, and that it had the appearance of having been a long time in that state. The boat returned at seven with a quantity of the snow, together with specimens of the vegetation, and of the rocks, the description of which will be found in the Appendix; the snow was immediately examined by a microscope, magnifying 110 times, and the substance appeared to consist of particles like a very minute round seed, which were exactly of the same size, and of a deep red colour: on some of the particles a small dark speck was also seen. It was the general opinion of the officers who examined it by the microscope, that it must be vegetable, and this opinion seemed to gain strength, by the nature of the places where it was found; these were the sides of the hills, about six hundred feet high, on the tops of which was seen vegetation of yellowish green and reddish brown colours. The extent of these cliffs was about eight miles; behind them at a considerable distance high mountains were seen, but the snow which covered these was not coloured; during the calm I took the view of this remarkable land, which is represented by the engraving. Both ships were made fast to icebergs which lay aground, and the velocity of the tide, which was at the highest springs, was ascertained to be one mile an hour, and its direction to be W.N.W. and E.S.E. In the evening I caused some of the snow to be dissolved, and

August 17. Lat. 75° 54′ N. Long. 67° 15′ W.

August 17. Lat. 75° 54′ N. Long. 69° 15′ W.

bottled, when the water had the appearance of muddy port-wine; in a few hours it deposited a sediment, which was examined by the microscope; some of it was bruised, and found to be composed wholly of red matter; when applied to paper, it produced a colour nearest to Indian red. It was preserved in three states, *viz.*, dissolved and bottled, the sediment bottled, and the sediment dried: these have been examined since our return to this country, and various opinions given concerning it, but Dr. Wollaston seems to concur in that which we originally had, of its being a vegetable substance, produced on the mountain immediately above it. It cannot be a marine production, as in several parts we saw it at least six miles from the sea, but always on the face or near the foot of a mountain.

A strict look out was kept all this day for natives, and their habitations, as we passed along shore. The main body of solid ice appeared a few miles to the south-westward of us, and innumerable icebergs were seen in every direction. In the evening we had an easterly breeze, and Cape Dudley Digges, which Baffin describes as being easily known by a small island off it. The island has a conical shape, and is very rugged. It was perfectly clear of snow, and appeared to be about four miles distant from the pitch of the Cape; it was found to be bold and deep on the outside, but on the inside there was a rippling, which led us to judge the water there was shallow.

The situation of the ice obliged us to pass very close to this island, the hand-lead was kept going, and a good look out

PETOOWACK.

Formation of an Iceberg.

for rocks was kept from the jib-boom end and crow's-nest; as we approached this part of the coast, we perceived, for the first time, a considerable swell, which we could not but deem a favourable omen. Soon after this we discovered water clear of ice, to the north-westward, as far as could be distinguished from the mast-head. August 18. Lat. 76° 12½′ N. Long. 69° 54¾′ W.

August 18. During the night the wind was light, but the Alexander brought up a breeze. Cape Dudley Digges was found to be a few miles to the southward of the situation in which Baffin has laid it down. It appeared to form a precipice of about eight hundred feet in height, was perfectly clear of snow, and presented a yellowish vegetation at the top, behind which, at the distance of eighteen miles, there appeared to be high mountains covered with snow. There was too much swell to land on it; and, indeed, our main object was now the prosecution of our voyage, as the lateness of the season did not warrant any further delays. The land appeared now to trend to the northward; there were several inlets, which would have been excellent harbours, but they were all filled with glaciers, some of them extending a considerable distance into the sea. The cliffs were, in most places, perpendicular, but there were also chasms and ravines, in which were the marks of torrents. About six miles north of Cape Dudley Digges, a beautiful glacier was seen, filling up a space of four miles square, and extending one mile into the sea; its height being at least one thousand feet: a plate of this remarkable object is given. To the north of this several huts were plainly distin-

August 18. Lat. 76° 12¼′ N. Long. 69° 54¼′ W.

guished, which led us to believe it to be Petowack. Wolstenholme Island was now in sight to the northward, and as we were steering for it with a fine breeze, and the sea almost clear of ice, we gave up all idea of communicating with the King of the Arctic Highlanders; the hopes of attaining the grand object of the enterprise were now raised to such a height, as to make that, which was considered so desirable but a few hours before, an object of no moment whatever. As we approached Wostenholme Island, and opened the Sound of that name, I sent a boat to try to reach the shore, but a thick fog coming on, I was obliged to recall her. A remarkable rock was seen, which I named Dalrymple Rock; the Cape forming the south entrance I named after his Grace the Duke of Athol, and that to the northward after the Earl of Stair, in compliment to these noblemen.

Before I close this part of the narrative, it may not be improper to give some account of the atmospherical phenomena, which were observed, during a tedious progress through six hundred miles of ice, as well as the manner in which our crews were governed and treated to preserve their health, an object of such vital importance to our enterprise.

By reference to a table in the Appendix, in which the height of the barometer, sympeisometer, and thermometer, were registered every two hours, it will be seen how little variation there was during the whole summer; a circumstance not to be wondered at, considering the sun was continually above the horizon. We were occasionally visited by fogs, which were, in

general, extremely thick, and of a very white appearance, while in the zenith the blue sky was apparent. At this time, the thermometer is generally at the freezing point; the moment this fog touches the ropes of the ship, it freezes, and these are, in a very short time, covered with ice, to the thickness of a man's arm, and at every evolution of the ship it covers the deck with its fragments. In the absence of these fogs, we had sometimes the atmosphere most beautifully clear; the objects on the horizon were often most wonderfully raised by the powers of refraction, while others, at a short distance from them, were as much sunk. The use of the dip-sector was totally suspended, as no satisfactory result could be obtained from it. These objects were continually varying in shape; the ice had sometimes the appearance of an immense wall on the horizon, with here and there a space resembling a breach in it; icebergs, and even small pieces of ice, had often the appearance of trees; and while, on one side, we had the resemblance of a forest near us, the pieces of ice, on the other side, were so greatly lengthened, as to look like long low islands.

August 18. Lat. 76° 12½′ N. Long. 69° 54¼′ W.

We were often able to see land at an immense distance, and we have certain proof that the power of vision was extended beyond one hundred and fifty miles; I made many observations with my sextant on the phenomena just described, and often found the same object increase in its altitude half a degree in the course of a few minutes. The high rock off Cape Dudley Digges, was observed to increase in altitude from 2° to 5°

August 18. Lat. 76° 12¼′ N. Long. 69° 54¼′ W. within an hour; in the course of next half hour it decreased to the appearance of a speck on the water, and soon after it became like a long low island, in which state it remained for some hours, when it resumed its natural shape. While the moon was in sight, she had the appearance of following the sun round the horizon, and while these bodies were passing in azimuth along the tops of the mountains, the snow which covered them, and which had naturally a yellow tinge, had then the lustre of gold, and the reflection of these upon the sky, produced a rich green tint so delicately beautiful as to surpass description. On the other hand, the rays of the sun darting over the tops of the mountains, came in contact with the icebergs, which appeared like as many edifices of silver, adorned with precious stones of every variety.

The rules and regulations, necessary to be attended to by the officers and crews of the expedition under my command, will be found at the conclusion of this narrative. It is, therefore, unnecessary for me to dwell on the subject of discipline, which is so essentially requisite, in order to preserve the health of the men. In the course of our tedious, and often laborious, progress through the ice, it became necessary to keep the whole of the crew at the most fatiguing work, sometimes for several days and nights without intermission. When this was the case an extra meal was served to them at midnight, generally of preserved meat; and I found that this kind of nourishment, when the mind and body are both occupied, and aided, no doubt, by the continual presence of the sun, acted

as a substitute for sleep, and they often passed three days in this manner without any visible inconvenience; after a meal of this kind, they returned to their labour on the ice, tracking and warping, or in the boats towing, quite refreshed, and continued at it without a murmur. No doubt the exercise was a considerable preventive to scurvy, which was the complaint most to be feared. As long as the vegetables lasted, no lime-juice was served; when the men got wet, which often happened, they were made to shift their clothes and put on dry ones: caps of canvass, lined with flannel, were made for them; these were conical in shape, and made large enough to come over the shoulders, buttoning under the chin; they had the effect of keeping the neck and breast warm, and being painted on the outside, also turned the water off effectually; they were made use of in rainy, snowy, or foggy weather. With these precautions, and the men being all of good constitution, we never had a sick person, and when we arrived at this part of our voyage, no crews were ever in higher health or spirits.

August 18. Lat. 76° 12¼′ N. Long. 69° 54¾′ W.

CHAPTER IX.

PROGRESS TOWARDS THE NORTH—WHALE SOUND, CAREY'S ISLANDS, AND HEAD OF BAFFIN'S BAY, DISCOVERED—SMITH'S SOUND—CAPE CLARENCE—JONES'S SOUND—ENTANGLED WITH ICE—THICK FOGS—CAPE LEOPOLD—PRINCESS CHARLOTTE'S MONUMENT—GET CLEAR OF THE ICE, AND PROCEED TO THE SOUTHWARD.

August 18. Lat. 76° 25′ N. [4 P.M. Long. 71° 00′ W. Var. 103° 10′ W.

THE breeze which had brought us on continuing fair, we passed Wolstenholme Sound about two P.M., and found it completely blocked up with ice. It seemed to be eighteen or twenty leagues in depth, and the land on each side, which has been already described, appeared to be habitable, but no habitations were discovered. We found the entrances to this inlet, and the general form and appearance of the land to agree extremely well with the description of it given by Baffin, as well as did its bearing and distance from Cape Dudley Digges. When we had passed this Sound, the breeze, which had now blown for some hours, gradually subsided into a calm, and we were thus fortunately enabled to ascertain that there was no current. The boat was also sent to examine some icebergs, that were seen to be aground, and we thus discovered that there was no tide of consequence. An opportunity was

thus also afforded for sounding, and in trying the bottom we found it rocky; the depth being two hundred and fifty fathoms. At four P.M. Whale Sound was discovered, but we could not approach it in a direct line on account of ice. The wind then shifted to the northward, and obliged us to stand towards the west, in which direction the greatest extent of clear water appeared to be. The land to the northward of Whale Sound appeared to be very mountainous, and to take a westerly direction. I named the capes on this side after Lieutenants Parry and Robertson; and to a Sound which lies to the north of Cape Stair, I gave the name of Booth Sound. These two inlets were not so large as the first, and were both filled with ice. At nine P.M. the weather became very clear, and Carey's Islands were discovered; these also agreed with the description of Baffin, and appeared to be twelve leagues from the main, which bore from it about north. The sea was now clearer of floes and loose ice than we had ever seen it; but we found a vast number of very large icebergs, most of which were aground in two hundred and fifty fathoms, and appeared to have been long washed by the waves. The wind, which was from the north, freshened so much, as to prevent us from fetching these islands; and being anxious to get as near them as possible, I made all sail, and left the Alexander at a considerable distance.

August 18.
Lat. 75° 25′ N.
Long. 71° 00′ W.
Var. 103° 10′ W.

We continued our course the whole night, until eight in the morning, when we found ourselves abreast of the westernmost of the islands above-mentioned, and stood for a large iceberg,

August 19. Lat. 76° 28½′ N. Long. 73° 19¾ W. Var. 102° 00′ W.

to which Captain Sabine and Mr. Bushnan were sent to take observations for time and variation, with directions to remain there for the meridian altitude. In the mean time we tacked, and stood to the N.E., to get a better view of Whale Sound, and the land near it, and were soon convinced there was no navigable passage in that direction. At noon we returned to the iceberg for our boat, by which time the Alexander had reached it; we exchanged signals with each other, and, on comparison, found that the observations for latitude, longitude, and variation, agreed in both ships. After this we resumed our course to the westward, and Hackluit's Island of Baffin was seen appearing very near to the main land. At two we discovered land to the S.W., apparently about twenty-five leagues off; every object seemed much raised by refraction, and several observations were made, which confirmed what has been already said on the subject. To the westward of Hackluit's Island we discovered a cape, which I named after Sir James Saumarez, in compliment to that gallant admiral, under whose command I had served for many years; the land from thence trended to the north. It fell calm about seven P.M., when a party was sent to observe azimuths; in which they were, however, disappointed, by a fog coming on soon after they reached the nearest iceberg; but the dip of the magnetic needle was observed. Soon after the return of the boats, a fresh breeze sprung up, and I had hopes of being able to examine the great bay, which appeared to the north, and through which a passage might possibly be found. For this

purpose we bore up under all sail, but had not proceeded above ten miles, when a very thick fog came on, accompanied with a considerable swell. We ran to the northward through much loose ice, about six miles, when the wind increased and obliged us to close reef the topsails; and it being imprudent to run under such circumstances, I hauled to the westward.

August 19, at Midnight.
Lat. 76° 54′ N.
Long. 74° 20′ W.
Var. 103° 00′ W.

At ten it cleared up and moderated a little, and I made the signal for Lieutenant Parry, when, having delivered to him some additional sealed instructions, to be opened in the case of parting company, I bore up again to make out the situation of the land; Carey's Islands were then in sight to the S.E. of us. It continued clear until near one in the morning, and the sun passing in azimuth below the pole, along the tops of the mountains, gave us an excellent view of the bottom of this bay. Smith's Sound, discovered by Baffin, was distinctly seen, and the capes forming each side of it were named after the two ships, Isabella and Alexander; I considered the bottom of this Sound to be about eighteen leagues distant, but its entrance was completely blocked up by ice; a thick fog soon came on, and we again hauled to the westward.

During the time we were running before the wind for this Sound, every precaution was taken to avoid accident; look-out men were placed at the mast-heads, yard-arms, and jib-boom-end, while the lead was kept going. When we hauled our wind, we were a considerable distance from the Alexander, which gave us an opportunity of sounding with the deep-sea clamms; we found one hundred and ninety-two fathoms, and

August 20. Lat. 76° 46½′ N. Long. 75° 21½′ W. Var. 102° 00′ W.

obtained a quantity of grey mud, with stones, and some chocolate-coloured clay in which some worms were found; and the large icebergs, which we passed in great numbers, were also a proof that the water was not shallow.

August 20. We were now, by our reckoning, in latitude 76° 54′ N., Cape Saumarez ten leagues distant, and Carey's Islands bearing about S.E. Having determined that there was no passage further to the northward, I stood under easy sail to the S.W. for ten miles further, during which we had much difficulty to avoid the loose ice with which the sea was covered, and it becoming thicker the nearer we approached the shore, in this position we hove to, for the fog to clear away. At seven the gale considerably abated, we hauled to the N.N.E., taking the precautions already described to avoid danger.

We ran from nine A.M. until four P.M., when it suddenly cleared, and we saw the nearest land at a distance of six leagues, bearing N.W.; to the north-eastward there appeared a bay which we judged to extend to latitude 77° 45′ N., but the land was distinctly seen beyond it forming a chain of mountains from Smith's Sound to the westward. It was my intention to have examined this bay, which was evidently the northernmost, in order to determine more accurately its geographical situation; but a firm field of ice occupied the whole of its vast surface, at the outer edge of which lay a ridge of large icebergs apparently aground, which, I conjectured, were formed on the coast to the westward, where the sea was deep near the rocks, and that they must have been

driven on shore there by strong southerly gales. There were two capes within this bay, one of which I named after Captain Hurd, in compliment to my friend, the hydrographer of the Admiralty, and the other after our worthy friend Mr. Mouat.

August 20.
Lat. 76° 46½′ N.
Long. 75° 21¾′ W.
Var. 102° 00′ W.

Having approached these icebergs as near as possible, I made the signal for Lieutenant Parry, and gave him directions to proceed with a party to the most convenient iceberg, in order to make observations on the dip of the needle and intensity of magnetic force, as also upon the rise, fall, direction, and velocity of the tides. The magnetic dip was found to have increased from 85° 44′ 38″ to 86° 9′ 33″ since the preceding day, and the force, as ascertained by the oscillations, was also found to have increased about one forty-eighth part; a more detailed account of these observations will be found in the Appendix. The rise and fall of the tide was only four feet, its velocity half a mile, and the flood setting to the north. In the mean time I was employed in observing the deviation on each point of the compass, and found it to be the same in amount which it had been since the 4th of August, when the variation was 90°, and the dip of the needle 84° 52′ 6″. This observation is peculiarly important in any theory that may be adopted respecting the deviation of the needle, as it proves that it is not necessarily dependent on the quantity of horizontal force exerted by the needle; since when that force had materially diminished, the quantity and force of the deviating tendency remained unaltered.

Whilst we were thus employed, Lieutenant Robertson, and

August 21. Lat. 76° 32¼′ N. Long. 76°-32¾′ W. Var. 105° 00′ W.

other officers, were stationed at the mast-head to look out for the direction of the coast; and they made their reports, that they were satisfied they had seen the land completely round this bay at different times; as did also the officers of the Alexander, who were at the mast-head of that ship at the same time.

Whatever my own notions respecting the real nature of the space passed over in the foregoing run, from Cape Saumarez to Cape Clarence, might have been, and whatever my own expectations were, as to the probability of an opening in this direction; the ardour existing at home for the discovery of a north-west passage, and the confidence with which the supposed situation of such an opening has been transferred to one spot as fast as it was found not to exist in another, render it necessary to recapitulate the circumstances which disprove its existence in this place, which forms the northernmost extremity of Baffin's Bay.

On the 19th of August, at fifty minutes past midnight, the ship being nearly on the seventy-seventh degree of north latitude, ten leagues to the westward of Cape Saumarez, which forms the east side and the bottom of this bay, the land was distinctly seen. On the 20th and 21st, when off Cape Clarence, at the distance of six leagues, the land which forms the west side, and the bottom of this bay, was also distinctly seen by the abovementioned officers and myself, and by these two observations the coast is determined to be connected all round. At each of these periods this immense bay was observed to be covered

with field-ice; besides which, a vast chain of large icebergs was seen to extend across it; these were apparently aground, and had probably been driven on shore there by southerly gales. It was also observed, that the tide rose and fell only four feet, and that the stream of it was scarcely perceptible.

August 21. Lat. 76° 32¾′ N. Long. 76° 54¾′ W.

From these several considerations it appears perfectly certain that the land is here continuous, and that there is no opening at the northernmost part of Baffin's Bay from Hackluit's Island to Cape Clarence. Even if it be imagined, by those who are unwilling to concede their opinions while there is yet a single yarn of their hypothesis holding, that some narrow Strait may exist through these mountains, it is evident, that it must for ever be unnavigable, and that there is not even a chance of ascertaining its existence, since all approach to the bottoms of these bays is prevented by the ice which fills them to so great a depth, and appears never to have moved from its station.

Being thus satisfied that there could be no further inducement to continue longer in this place, and it being necessary to husband the little time yet remaining, for the work which was still to be done, I ordered accurate bearings of the different headlands to be taken, and, having named the remarkable cape forming the west side of the bay, after the Duke of Clarence, in commemoration of the birth-day of his Royal Highness, I shaped my course on the morning of the 21st towards the next opening which appeared in view to the westward.

August 21. Lat. 76° 32¼′ N. Long. 76° 54¾′ W. Var. 108° 00′ W.

The land forming Cape Clarence is exceedingly high, the mountains peaked and generally covered with snow, the tops of them appearing above the clouds; the precipices only being black, as they were too perpendicular for the snow to rest upon. A view of this part of the coast was taken by Mr. Bushnan, and will be found in the plate. An easterly breeze springing up, we proceeded to explore the opening which I have mentioned was in sight, and which answered to the description of Alderman Jones's Sound, given by Baffin, who discovered it.

We ran nine miles among very heavy ice, until noon, when a very thick fog coming on, we were obliged to take shelter under a large iceberg.

Since our leaving Wolstenholme Island, the ice which we met with had assumed a very different character from any we had before met with; it had generally a green tint, and appeared to have been a long time at sea, without, however, being in a state of decay: it was in huge pieces of irregular forms heaped upon each other by some tremendous force, and then frozen together. This being the nature of the ice between us and the land, a communication with it was impossible; a large piece of gneiss was, however, obtained from a berg which had, most probably, been separated from this part of the coast. The land from this Cape towards the west presented some deep ravines, which were filled with ice that extended far into the sea, in the manner before described; there was no appearance of vegetation, nor did the land appear habitable; very few

birds were seen, and no whales, or any other living creatures than seals, which were, however, in abundance.

August 22.
Lat. 76° 32¼′ N.
Long. 77° 04′ W.
Var. 107° 56′ W.

Several copper cylinders, containing an account of our proceedings, were left on the floating ice, within these forty-eight hours; we sounded here in one hundred and ten fathoms, and completed our water. During the fogs we had been lately visited with, the ropes were covered with ice, which rendered every evolution difficult, and, at the same time, prevented every kind of observation. Here I had an opportunity of correcting some differences between the Alexander's reckoning and the Isabella's; and I supposed that the deviation of the former must have changed to produce this difference. I also ordered, that the officers of the watch in the Alexander should write the rough log as soon as their watches were ended; and, mentioning every particular, sign their initials opposite the hour, in the same manner that was practised in the Isabella, as those differences might have arisen from mistakes in copying the log.

August 22. A very thick fog and a calm continued until a few minutes before noon; when the sun appeared, and we had an excellent meridian altitude on the iceberg, by reflection, which gave the latitude 76° 30′ N.; completely proving that the reckoning of the Isabella was correct, and that the furthest north the ship had been was 76° 55′ N., at which time she was in longitude 74° 56′ 48″ W. At half past three we had good altitudes for time, and found our longitude to be 77° 4′ 6″ W.; and, soon after, we had azimuths, which gave the variation 108° W. The Alexander's observations agreeing

August 23. Lat. 76° 37′ N. Long. 77° 04′ W.

with the Isabella, proved also that the former ship had been much further north than her reckoning, from noon on the 19th until noon on the 20th, had given; and by working her courses back from this latitude and longitude, it appeared, that, at fifty minutes past midnight, on the 19th, we had been beyond the seventy-seventh degree. Observations were also made this day on the magnetic dip, by Jones's instrument, and they were found to agree with Mr. Browne's; it having been discovered, that the correction for error, marked on the former, ought to have been 4′ instead of 4°, which was the quantity inadvertently given as required for adjustment, and they both gave the dip of 86° 25′.

August 23. The weather this day was not foggy near the ships, but it was so thick all round the horizon, that it prevented our seeing the land, or the situation of the ice, which surrounded us in every direction. The iceberg to which we were moored had drifted, during the night, into ninety-eight fathoms, with a stony bottom. The wind being too light to make progress in beating to windward, I could not get under weigh; but, soon after divine service, a breeze sprung up from the southward, when the ships were cast loose, and the sails set. The sun's meridian altitude was observed on the iceberg, and the latitude found to be 76° 37′ N., the iceberg having drifted three miles to the northward.

We now stood for the Sound which we had seen on the 21st, tacking and bearing up occasionally to avoid the ice, which was generally from six to twelve feet thick, very uneven, and

in pieces of various shapes; so that it was impossible to keep clear of it, and the ship unavoidably received some severe shocks, but fortunately no damage. Towards evening we successively made out the north and south points of the land across the bottom of this bay, or inlet, which answered Baffin's description of Jones's Sound. At midnight, a ridge of very high mountains was seen to extend nearly across the bottom of it, and joining another from the south, which was not quite so high. The bay was completely blocked with ice, in which were some very large icebergs; and from the points of land, glaciers of solid ice were seen extending for many miles into the sea. It was evident that there could be no passage in that direction, and we, therefore, began to beat to the southward, having named the above-mentioned Capes Hardwicke and Caledon, after those distinguished noblemen. At eleven P.M., a piece of fir wood was picked up: it had nails in it, and the marks of the plane and adze were also evident. This seems to prove that it must have drifted up the bay, probably by the strong southerly winds. Many seals were seen, and the tracks of bears were visible on the ice in many places.

August 23. Lat. 76° 97′ N. Long. 77° 04′ W. Var. 107° 56′ W.

August 24. The weather continued clear until four P.M., and we had a still better view of the land about Jones's Sound. We, therefore, stood towards the southern point, where there appeared some chance of nearing the land; but, after beating for some time, it fell calm, and soon afterwards a thick fog obliged us to make fast, being unable to see the passages through the ice, which were continually changing;

August 24. Lat. 76° 15′ N. Long. 78° 18′ W.

and, after some time, the Alexander joined us. This position was remarkable for variety in the depth of water, and quality of the substances at the bottom. When we made fast we had seventy-eight fathoms, soon afterwards we had one hundred and sixty, then eighty-five, then two hundred, one hundred and fifty, and one hundred and eighty-five, within a short time of each other; in the shallowest water we had muddy sand and shells; at one time a small piece of coral; at eighty-five fathoms we had rocky bottom; at one hundred and sixty, stones; at two hundred, mud; and at one hundred and fifty, mixed blue and grey clay, with worms in it. A great number of seals were seen, and the traces of a bear, of an extraordinary size, the marks of his fore paw measuring fifteen by thirteen inches, and his hind paw twenty by twelve. We had no observations this day, on account of the thick fog, and the ice was too unsteady for the dipping needle; but the night was remarkable for its having been the first on which the sun had been observed to set since the 7th of June; thus terminating a day, which consisted of one thousand eight hundred and seventy-two hours, and giving us a warning of the approach of a long and dreary winter.

August 25. About midnight it cleared up, and we again saw the land, and had, for the third time, a view of Jones's Sound, and of a bay to the southward of it, which I named Lady Anne's Bay. The cape to the north was also named Cape Lindsay; and the mountains at the bottom, which were the highest we had yet seen, were named Barnard's Mountains.

As it became quite calm, all boats were employed in towing; and, passing through much heavy ice, we came to some very large icebergs, which lay aground on the edge of a bank, on which we found fifty-seven fathoms water. We were now about seven or eight miles from the land; I made fast to an iceberg, in order to try the magnetic dip and force.

August 25.
Lat. 76° 10′ N.
Long. 78° 30′ W.
Var. 109° 58½′ W.

The fog was extremely thick on the surface of the sea, but at the mast-head, and at the top of the iceberg, it was perfectly clear, and from thence we had good observations. This berg was one hundred and four feet high, six hundred feet long, and four hundred feet broad; the dip here was found to have decreased to 86°.

About eight, a light breeze sprung up, but it was directly against us, and nothing could be gained by casting off among so much ice; we, therefore, remained at our moorings. We sounded in sixty fathoms, and at several casts obtained stones and shells, at others, sand, mud, and worms; the ice, which drew much water, passed the berg to the southward, but the small pieces drifted to the northward. It is worthy of remark, that the icebergs here were only three-fourths under water, while those to the south were five-sixths. As we had reason to think we were in the N.W. corner of the bay, I caused a flag-staff to be erected, at the bottom of which a copper cylinder containing the usual remarks, was buried, and another was thrown overboard. The rise and fall of the tide was observed this day (the 25th of the moon) to be ten inches; but the direction or velocity of the stream

August 26. Lat. 76° 44′ N. Long. 78° 28′ W. Var. 110° 00′ W.

was not perceptible. Seals were the only living creatures seen this day.

August 26. At half-past six the sun having considerable power over the fog, we could see about a cable's length from the ships; and I thought it advisable to attempt getting a little further to the southward, as we had seen the land as far as S. by E.; we therefore made sail, keeping company with the Alexander by musquetry. At intervals we had a clear sufficient to let us see we were within six miles of the land, which had now decidedly taken a southerly direction. We kept the lead going, and had various soundings; when the water was under sixty fathoms we had rocky bottom, between sixty and seventy fathoms we had coral, and above that mud; the shoalest water we had was forty-five, and the deepest eighty-five fathoms. We discovered this to be a bank extending along the land, in a north and south direction, at the distance of five or six leagues: on it a vast quantity of icebergs were aground, and round them a vast number of smaller pieces of ice were floating. On one of these a very large piece of granite was seen, and I sent a boat to tow it alongside, intending to hoist it in, but unfortunately it slipped out of the slings and sunk. Some specimens of this and other stones were, however, preserved by both ships.

A party was this day sent to an iceberg, and the variation was obtained by azimuth. It was also determined that the point of change in deviation, as well as its amount, continued the same as it was found to be on the 19th. By a meridian

CORTINA, DIAZ, CARO, ESCUDERO & PRIETO. CHARLOTTEN MONUMENT.

August 26.
Lat. 76° 04′ N.
Long. 78° 28′ W.
Var. 110° 00′ W.

altitude of the sun, we found we had made four miles southing in the twenty-four hours. It was evident, that the nearer we approached the land the ice was the more compact; and, being of the nature before described, it was impossible to communicate with the shore; I therefore thought it unadvisable to attempt to penetrate nearer, when it was certain nothing could be gained by it. On this ice the tracks of bears were every where visible, but none of these animals were discovered. Several birds of the peterel kind were shot and preserved. Towards evening the land to the southward was seen as far as the S.S.W. point of the compass. On this coast numerous and immense glaciers of ice were seen, extending into the sea for several miles. Off the southernmost point, a very remarkable conical rock, with a small one near it, of similar form, was seen; and, when abreast of it, a large bay, which was filled by a glacier, extending quite across it, was seen; this I named Cobourg Bay; and the headland before mentioned, Cape Leopold, in compliment to his Royal Highness the Prince Leopold. The remarkable rock near it was named Princess Charlotte's Monument, after our lamented Princess; and a view of these, taken by myself, will be found in the engravings.

CHAPTER X.

FURTHER PROGRESS TO THE SOUTHWARD—FIND OPEN SEA—DISCOVER, AND GIVE NAMES TO, VARIOUS HEADLANDS AND BAY—ARRIVE AT LANCASTER SOUND, AND EXPLORE IT—TAKE POSSESSION OF THE COUNTRY—EXTRAORDINARY VARIATION OF THE COMPASS—CONTINUE EXPLORING THE COAST TO THE SOUTHWARD.

August 27. Lat. 75° 40′ N. Long. 77° 08′ W.

ON the 27th of August, we continued our course to the southward, and, by the continuation of the easterly winds, were enabled to make a good stretch along the land, which I distinctly saw as far as S.W. In passing Cobourg Bay, we discovered that it was completely occupied by an impenetrable glacier of ice, and the chain of mountains which has been already described, was seen to extend to the southward without interruption. The Cape which formed the southern boundary of Cobourg Bay was named after Captain Horsburg, in compliment to the hydrographer to the Honourable East India Company. From thence the land took a direction due south, when a very bold and high promontory was seen about six miles to the southward, which was named Cape Cockburn, in compliment to Sir George, one of the Lords of the Admiralty. This Cape is situated in latitude

74° 49′ and longitude 78° 45′ W. It resembles the coast between it and Cape Clarence, being completely covered with snow, except where the precipices are too perpendicular for it to lie upon. The valleys and ravines were filled with ice, and the coast rendered totally inaccessible by surrounding masses, such as have been already described.

August 27. Lat. 75° 40′ N. Long. 77° 08′ W.

The wind having increased, we got considerably a head of the Alexander, and explored a spacious bay to the south of Cape Cockburn, which I named Banks Bay, after the Right Honourable Baronet and President of the Royal Society.

This bay, like the last, was occupied by ice, and surrounded by a continuation of the mountains which have been already mentioned. Here I was obliged to shorten sail for the Alexander, the weather becoming thick; and we lost sight of the land, having made twenty-five miles southing. When the Alexander came up we again made sail, and having proceeded about twelve miles further, which I calculated would bring me as far south as I had distinctly seen the land and determined its situation, I shortened sail; and, under the topsails, endeavoured to maintain our position, which I judged to be the most favourable one for pushing on in any direction that circumstances might point out. Our progress which, during the last twenty-four hours, was thirty-six miles in distance, was accomplished with considerable difficulty, from the innumerable masses of ice with which we were surrounded. Sometimes we were obliged to bear up, and, by giving the ship fresh way through the water, endeavour to separate the masses of ice

August 27. Lat. 75° 40′ N. Long. 77° 08′ W.

which lay in streams across our course. In this we occasionally succeeded, and the Isabella being larger and a better sailer than the Alexander, consequently her momentum more powerful, she had, as in the whole of our progress through the ice, a decided advantage in a breeze. But this operation often failed, and we were then obliged to have recourse to warping hawsers, in order to heave the ship through, or extricate her from the situation into which she had been thrown; at other times we were obliged to make several tacks to weather certain large masses, or to enable us to fetch the most likely place to be penetrated.

In all these manœuvres, the greatest care is requisite to avoid the *tongues*, or projections of the ice under water, which are often at the depth of six or eight feet. For the purpose of observing them, experienced seamen are placed on each bow, who, on discovering the danger by the green appearance of the water, call out, *Starboard*, or *Port*, as the occasion may require, thereby directing the helmsman to steer clear of it. Although the leading ship has in these cases some disadvantages in forcing through the ice, being the first to break it, and thereby make a passage for the next, yet the ship which follows has difficulties, which more than balance the advantage of sailing through a breach already made; for, if her leader passes between pieces of ice with considerable velocity, through any narrow channel, some of these pieces immediately receive a tendency towards the space the ship had occupied, in order to fill up where the

water had been displaced. They therefore rush towards the ship's wake; their motion being also often accelerated by the concussion of the ship against some particular piece, which produces a re-action in the rest. Hence it generally happens, that when the ship astern arrives at the entrance of the channel, she has more difficulties to encounter than her leader, from the accumulation of pieces in the passage. It is also not uncommon for the obstruction to be so great as to render forcing through totally impracticable; this often happened to the Alexander, but it only served to redouble the zeal and perseverance of her commander, officers, and crew, who were unremitting in their labours, to keep up with the Isabella. The unavoidable detention arising from these circumstances, and the inferiority of that ship in sailing, were not more than sufficient to give me an opportunity of exploring the coast as I passed it, by enabling me, without loss of time, to stand in whenever it was clear, and make the necessary observations.

August 27. Lat. 75° 40′ N. Long. 77° 08′ W.

The spot at which we had now arrived was more clear of ice than any place we had seen since we left Cape Clarence, and we observed in it a little swell from the south-eastward. The fog being excessively thick, and the ropes covered with ice, we had no chance of being able to penetrate any further if we had desired it, but we continued standing off and on, one hour on each tack, in hopes of the return of clear weather. This, however, did not take place, and we were overtaken by darkness, the length of the nights having very considerably

August 28. Lat. 75° 27′ N. Long. 77° 52′ W.

increased, both by our progress to the south, and the decrease in the sun's declination. In this situation we kept company with the Alexander by musketry, until about midnight, when a large pack of ice drifted upon us, and, closing up our pool, obliged us to stand to the eastward. This day, which was the last of the sun and moon's being in distance, closed, and completed our disappointment in not getting a lunar observation for the whole quarter, which would have been of much importance to us; we sounded, but had no ground in three hundred fathoms, and there was too much drift to obtain soundings in deeper water. Two bottles, containing an account of our proceedings, were thrown over-board in latitude 75° 24′, and longitude 78° 21′, about one P.M.

August 28. During the night we had snow and thick rain, and were much annoyed with pack ice; and, at one time, were in much danger of being beset, but we carried sail, and forced ourselves to the eastward, in which direction clear water was discerned at day-light. At three we succeeded in getting completely clear of ice, and once more found ourselves in the open sea; and, at the same time, observed a considerable swell from the S.S.E., in which direction we had the wind. The thick rain continued until five A.M., then it gradually ceased, and was succeeded by cloudy weather, and very little wind. The body of the packed ice was seen to the true north, extending from S.W. to E. At noon we had an indifferent observation, and made several tacks to weather the ice, but made very little way in consequence of the swell. At length

we succeeded, and a light breeze carried us on five leagues towards the S.W. Between three and four the weather cleared up, and gave us a view of the land, which consisted of mountains, being the highest we had yet seen, and the height of which I estimated at four thousand feet. The nearest land to us was that which formed the southern point of Banks Bay, and to which I now gave the name of Cape Cunningham, after my old friend and commander, the Commissioner of His Majesty's Navy at Woolwich; and the mountains were also named Cuninghame Mountains, in compliment to some other friends of that name. The southern extremity of the land, which bore S.S.E., I named Cape Charlotte, and it is in latitude 74° 32′ N., and longitude 79° 30′ W. This extent of land could not be approached nearer than five leagues, on account of the packed ice, of that impenetrable description already mentioned; but on the other hand, the sea to the westward, from south to north, nothing but clear water was to be seen, the ice seeming to be packed into the bottom of Baffin's Bay, by the southerly gales. The ship continued to beat along the coast in a direction nearly on the meridian, and we proceeded slowly to the southward. The mountains from Cape Cunningham, towards the south, now appeared to be only partially covered with snow; and, even at the very tops of them, which were visible above the clouds, black rocks were plainly seen. Their sides, as they appeared from the sea, were almost clear of snow; and, for this short distance, the country appeared as

August 28.
Lat. 75° 27′ N.
Long. 77° 52′ W.

August 29. Lat. 74° 59′ N. Long. 78° 01¼′ W. Var. 113° 00′ W.

habitable as that part of the opposite coast, which we found to be actually inhabited.

We sounded occasionally, and had regularly two hundred and forty fathoms; and, by means of the deep-sea clamms, obtained a quantity of mud and clay, in which worms were found. At one cast a piece of granite also was brought up, which weighed more than a pound. Towards midnight a very thick fog came on, but we continued our course to the southward, in the direction of the furthest land we had seen.

August 29. The fog still continued, and we proceeded as before, keeping a good look-out, and sounding whenever we got far enough a-head of the Alexander not to detain her by that operation, and finding from two hundred to two hundred and forty fathoms. At noon the fog cleared away, and, at four, we got to a considerable distance from the edge of the ice, when the temperature of the water on the surface was found to be 36°, being an increase of 4°, which I considered to be the natural consequences of the absence of ice, together with our advance to the south. The land to the southward was seen, but not perfectly distinct until 5^h 30^m; when the fog, after being very thick for a short interval, cleared entirely away, and we saw it from south to north-west: the mountains near Cape Charlotte bore west. We shortened sail for the Alexander, after we had made out the land, and sounded in two hundred and ten fathoms. Between Cape Charlotte and the land, which bore south, a wide opening appeared; but the wind shifting

to the west, I could not stand in to this opening to explore it, and, therefore, stood to the southward; but, at ten P.M., the wind changed to south, and I tacked, and stood in under all sail. The swell continued from the S.S.E., and, at midnight, the weather was very thick and foggy.

August 30. Lat. 74° 19¼′ N. Long. 78° 33′ W. Var. 110° W.

August 30. The weather being still thick and cloudy, we continued to steer so as to gain the middle of the opening, making about a south by west course; but the wind was light and variable, and not much progress was made. About four we had a shower of rain, and soon afterwards the fog cleared away a little, and we saw two icebergs at a considerable distance; we then altered our course, in the manner most likely to answer for getting to the westward, and carried all sail. About ten we saw the land, which forms the northern side of the opening, extending from west to north, in a chain of high mountains, covered with snow. Soon afterwards the south side of this opening was discovered, extending from S.W. to S.E., forming also a chain of very high mountains. In the space, between west and south-west, there appeared a yellow sky, but no land was seen, nor was there any ice on the water, except a few icebergs; the opening, therefore, took the appearance of a channel, the entrance of which was judged to be forty-five miles; the land on the north side lying in an E.N.E. and W.S.W. direction, and the south side nearly east and west.

Having had good observations for time, and a meridian altitude of the sun, the latitude and longitude were accurately determined; and, at the same time, the bearings of the land

August 30. Lat. 74° 19½′ N. Long. 78° 33′ W. Var. 110° W.

were taken and registered. Divine service was performed; and, in the afternoon, the wind having obliged us to stand to the south side, we had an excellent view of the most magnificent chain of mountains, which I had ever beheld. These mountains, and the cape which terminates them, and forms the eastern extremity of the land on that side of the channel, were named after Sir Byam Martin, in compliment to my most esteemed friend, the Comptroller of His Majesty's Navy; and the various capes and bays, which were formed in this track of land, were named after his amiable family and nearest relatives, as a mark of my respect and regard for them. These mountains, which take their rise at the sea, at Cape Byam Martin in the east, and from a low plain, near Catherine's Bay, in the west, terminate in sharp lofty peaks; and the rocks which form them being, on one side or the other, and often on every side, too perpendicular for the snow to rest upon, are distinctly seen above it, displaying the most remarkable, as well as wonderful, appearances. In one place, nearly between Cape Fanshawe and Elizabeth's Bay, two rocks, resembling human figures of a gigantic size, were seen in a sitting posture, on the very highest peak; and, as it was considerably above the clouds, their appearance was both extraordinary and interesting.

The snow appeared deep in the valleys of the interior, but the ravines next the sea were only partly filled with it, and the precipices near the foot of the mountains were perfectly bare. The low and level tract of land which has already been

Cape Byam Martin, Pisgah from Mount and Cape Fanshawe Discovered Sept.r 1st 1820. by Hs. M.S. Isabella

August 30. Lat. 74° 19½′ N. Long. 78° 33′ W. Var. 110° W.

described to form Catherine's Bay, was also perfectly clear of snow, and was, to all appearance, the most habitable situation on the coast. The rest of the day was spent in beating to the westward, all sail was carried, and every advantage taken of the changes in the direction and strength of the wind. As the evening closed the wind died away, the weather became mild and warm, the water much smoother, and the atmosphere clear and serene. The mountains on each side of the Strait, being clear of clouds, had beautiful tints of various colours. For the first time we discovered that the land extended from the south two-thirds across this apparent Strait, but the fog which continually occupied that quarter, obscured its real figure; in this position we had good observations for time, and the dip sector and Kater's altitude instrument were used, and the temperature of the water at four o'clock was 36½, exactly in the centre of the mouth of the Strait. The close of this evening was remarkable for the appearance of Capella, the first star we had seen for twelve weeks.

During this day much interest was excited on board by the appearance of this Strait; the general opinion, however, was that it was only an inlet. Captain Sabine, who produced Baffin's account, was of opinion, that we were off Lancaster Sound, and that there were no hopes of a passage until we should arrive at Cumberland Strait; to use his own words, there was "no indication of a passage," "no appearance of "a current," "no driftwood," and "no swell from the north-

Aug. 31. Noon. Lat. 74° 03′ N. Long. 80° 37′ W. Var. 114° 00′ W.

"west." On the contrary, the land was partially seen extending across, the yellow sky was perceptible; and, as we advanced, the temperature of the water began to decrease. The mast-head and crow's-nest was crowded with those who were most anxious, but nothing was finally decided at the setting of the sun.

Soon after midnight the wind began to shift, and the ship came gradually up, enabling us to stand directly up the bay: I, therefore, made all sail, and left the Alexander considerably astern. At a little before four o'clock, A.M., the land was seen at the bottom of the inlet by the officers of the watch; but before I got upon deck, a space of about seven degrees of the compass was obscured by the fog. The land which I then saw was a high ridge of mountains, extending directly across the bottom of the inlet. This chain appeared extremely high in the centre, and those towards the north had, at times, the appearance of islands, being insulated by the fog at their bases. Although a passage in this direction appeared hopeless, I was determined completely to explore it, as the wind was favourable; and, therefore, continued all sail. At eight the wind fell a little, and the Alexander being far astern I sounded, and found six hundred and seventy-four fathoms, with a soft muddy bottom. There was, however, no current, and the temperature of the mud was 29½°. Soon after this the breeze freshened, and we carried all sail, leaving the Alexander, and steering directly up the bay. The weather was now variable, being cloudy and clear at intervals. Mr. Beverley, who was the most sanguine,

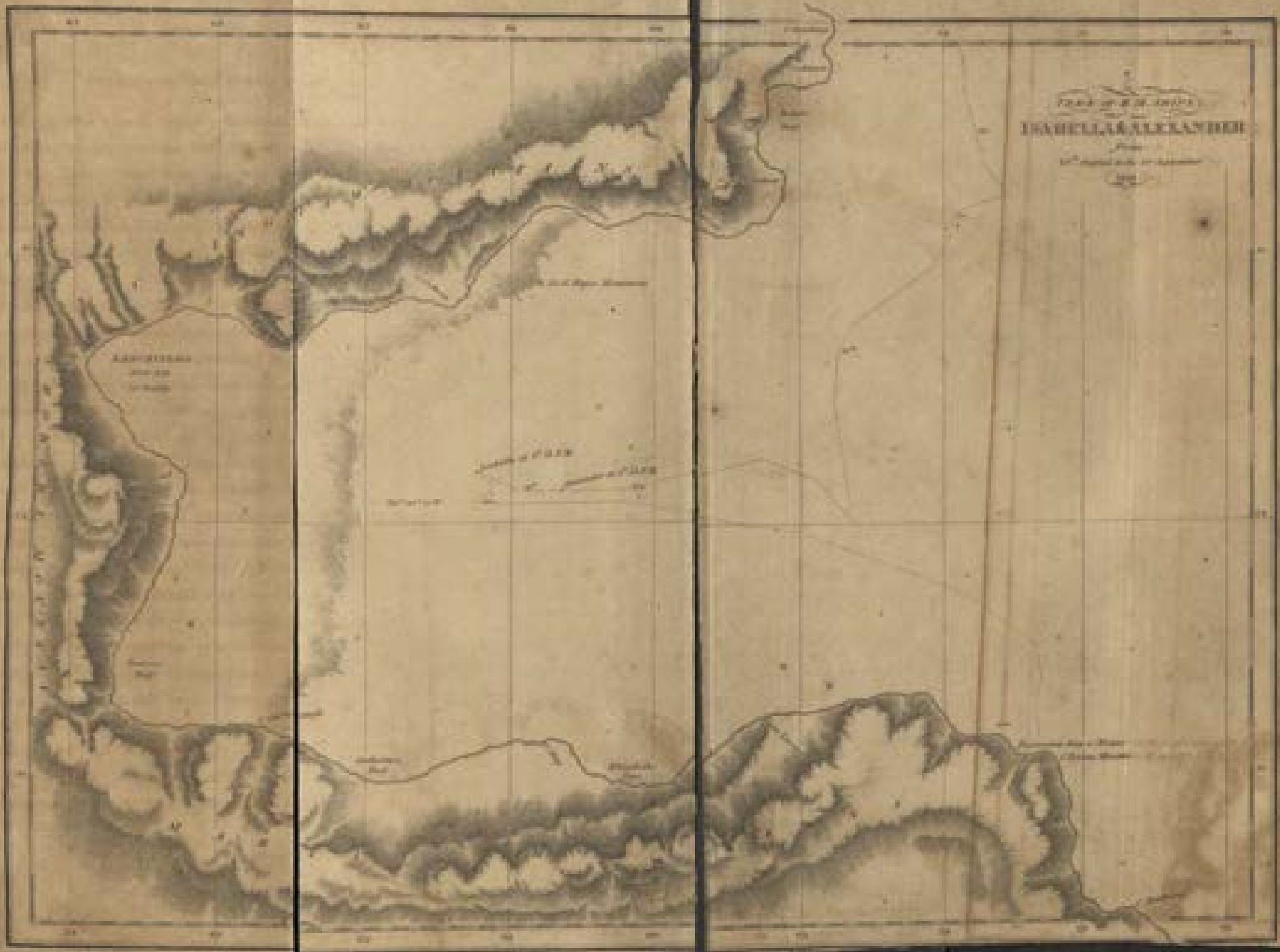
went up to the crow's-nest; and, at twelve, reported to me, that before it came thick, he had seen the land across the bay, except for a very short space. The land to the S.E. was very distinct, and I had an excellent transit and bearing of Cape Byam Martin and Cape Fanshawe, with the ship's head on the point of the change, for the purpose of determining the variation, should no azimuths be obtained, notice of which will be taken hereafter. Although all hopes were given up, even by the most sanguine, that a passage existed, and the weather continued thick, I determined to stand higher up, and put into any harbour I might discover, for the purpose of making magnetical observations. Here I felt the want of a consort, which I could employ to explore a coast, or discover a harbour; but the Alexander sailed so badly, and was so leewardly, that she could not safely be employed on such a service. During this day we shortened sail several times, to prevent our losing sight of her altogether. As we stood up the bay two capes on the south side were discovered, one of which I named after the Earl of Liverpool; and the land was named Cape Hay, which formed the boundary on one side of Catherine's Bay before mentioned. On the north side a remarkable conical rock, the only island on this part of the coast, was discovered, and named Sir George Hope's Monument, after my lamented friend, one of the Lords of the Admiralty, who had recommended me for the command of this expedition, and whose signature of my orders on his death-bed, was the last act of his valuable life.

Aug. 31. at 6 P.M.
Lat. 74° 03′ N.
Long. 81° 28′ W.
Var. 114° 00′ W.

Aug. 31. at 6 P.M. Lat. 74° 03′ N. Long. 81° 28′ W. Var. 114° W.

About one, the Alexander being nearly out of sight to the eastward, we hove to for half an hour, to let her come up a little; and, at half past one, she being within six or seven miles of us, we again made all sail. I intended to have sounded during this interval, but I found the south-east swell had so much increased, and the drift was so great, that it was impracticable.

At half past two, (when I went off deck to dinner) there were some hopes of its clearing, and I left orders to be called on the appearance of land or ice a-head. At three, the officer of the watch, who was relieved to his dinner by Mr. Lewis, reported, on his coming into the cabin, that there was some appearance of its clearing at the bottom of the bay; I immediately, therefore, went on deck, and soon after it completely cleared for about ten minutes, and I distinctly saw the land, round the bottom of the bay, forming a connected chain of mountains with those which extended along the north and south sides. This land appeared to be at the distance of eight leagues; and Mr. Lewis, the master, and James Haig, leading man, being sent for, they took its bearings, which were inserted in the log; the water on the surface was at temperature of 34°. At this moment I also saw a continuity of ice, at the distance of seven miles, extending from one side of the bay to the other, between the nearest cape to the north, which I named after Sir George Warrender, and that to the south, which was named after Viscount Castlereagh. The mountains, which occupied the centre, in a north and south direction, were named Croker's


ISABELLA & ALEXANDER

Sir George Hopes Monument and Land on the North Side of Lancaster Bay Augt 30th 1818

Lancaster Sound as seen from H.M.S. Isabella at 3 P.M. Augt 31st 1818

Mountains, after the Secretary to the Admiralty. The south-west corner, which formed a spacious bay, completely occupied by ice, was named Barrow's Bay, and is bounded on the south by Cape Castlereagh, and on the north by Cape Rosamond, which is a head-land, that projects eastward from the high land in the centre. The north corner, which was the last I had made out, was a deep inlet; and as it answered exactly to the latitude given by Baffin of Lancaster Sound, I have no doubt that it was the same, and consider it a most remarkable instance of the accuracy of that able navigator*. At a quarter past three, the weather again became thick and unsettled; and being now perfectly satisfied that there was no passage in this direction, nor any harbour into which I could enter, for the purpose of making magnetical observations, I tacked to join the Alexander, which was at the distance of eight miles; and having joined her a little after four, we stood to the south-eastward, but the swell was so great, and the wind so baffling, that the ship's head could not be kept against the sea; this swell was probably increased from our proximity to the margin of the ice, and it would have been imprudent to have stood nearer to it under such circumstances. About six it fell nearly calm for a short time, and we sounded with the deep sea clamms, which brought up a quantity of mud, in which were five worms of a species that had not been seen before.

Aug. 31. at 6 P.M.
Lat. 74° 03′ N.
Long. 81° 28′ W.
Var. 114° 00′ W.

* An accurate view of this bay, as seen at fifteen minutes past three, is given in the plate, and also a special chart of the land.

Aug. 31. at 6 P.M. Lat. 74° 03′ N. Long. 81° 28′ W. Var. 114° 00′ W.

There were only six hundred and fifty fathoms of line out, consequently there could not be more than that depth of water; but there might have been much less, which was probably the case, for the swell was so great, that it was uncertain, after two hundred fathoms, when the machine reached the bottom. The temperature of the mud was 29°, no current was found, and neither the officers, nor myself, considered the great depth of water any indication of a passage; but, on the contrary, we had always found that in bays near the land, on the opposite coast *, the water was deepest; and this can be reckoned nothing uncommon, as it is the case over all the coast of Lapland. At Kola there is no soundings for several leagues up that river, which is only half a league wide, whereas, in the entrance to the White Sea, there are only nine fathoms. The same may be said of some parts of Norway and the Baltic. We remained, however, in this position until near dark, and the weather appearing more unsettled, it became advisable to stand out of this dangerous inlet, in which we were embayed, being within it above eighty miles. About eight a strong breeze came on, and it was so dark and thick, that the Alexander could not be seen. The motion of the ship being considerable, the whole of the compasses ceased to act; and there being no stars or land in sight, the only method I could have of ascertaining from what direction the breeze came, was by firing guns and muskets to the Alexander, the bearings of which ship was

* Prince Regent's Bay, Three Islands, and North-East Bay, &c.

known, and being answered by guns, it was found by the report, that the breeze had sprung up from the southward, and our course was shaped accordingly. Sept. 1. Lat. 73° 37′ N. Long. 77° 25′ W. Var. 110° 00′ W.

At ten o'clock, however, the weather cleared, and we saw Capella, by which we steered; but, as the water became smoother, in consequence of the south-west wind, the compasses began to traverse, and we continued our course towards Cape Byam Martin. During the middle watch the Alexander was hailed, and found to be steering the same course by compass as the Isabella, namely, S.W., on which point the two ships had, of course, the same deviation.

Sept. 1. At four, A.M., the above-mentioned Cape was in sight, and we steered directly for it; but, in approaching it, we took up the whole of the forenoon, which was, at intervals, foggy. Towards noon, preparations were made for landing in a small bay, to the northward of Cape Byam Martin, into which the ship could just fetch; and the signal to prepare two boats for exploring was made to the Alexander, which had got pretty near us. When within two leagues of this bay it fell calm; and, at one, the boats were despatched, under the orders of Mr. Skene and Mr. Ross, to take possession of the country. Captain Sabine, who thought the weather too foggy for the dipping needle, went on shore with the Surgeon and his Assistant, to collect specimens of natural history; and I directed Lieutenant Parry, as soon as he came on board, to follow, and take command of the whole party; and to obtain, if possible, some observations for ascertaining the variation of

Sept. 1.
Lat. 73° 37′ N.
Long. 77° 25′ W.
Var. 110° 00′ W.

the compass. They landed about two o'clock, and having taken possession of the country, in the name and on behalf of His Britannic Majesty, with the usual forms, a flag staff was erected; and, at its foot, a bottle, containing the proceedings of our ships, was buried on the summit of a conical mount, near the centre of the bay. In the mean time I was employed on board, in sounding and in trying the current, and the temperature of the water. It being perfectly calm and smooth, I had an excellent opportunity of determining these important objects. Soundings were obtained correctly in one thousand fathoms, consisting of soft mud, in which there were worms, and, entangled on the sounding line, at the depth of eight hundred fathoms, was found a beautiful caput medusæ: these were carefully preserved, and will be found described in the Appendix. To observe the current the line was again dropped over, and the transit bearings of two objects on the land set; these, however, did not vary in the least, nor did we find any current by the line. The temperature of the water on the surface was at 34½°, and at eighty fathoms 32°; but as our self-registering thermometer had been broken, and Captain Sabine's could not be got at, as he was on shore, the temperature of the water, at a greater depth, could not, therefore, be ascertained on board of the Isabella, but it was tried at two hundred and fifty fathoms, in the Alexander, and found to be 29⅓. These objects being obtained, views were taken of the land; and, at five, a light breeze springing up from the eastward, I stood into the bay to pick up the boats; and, at the distance of two miles from the

shore, we hove to, and sounded in four hundred and fifty fathoms, and the clamms brought up some stones and gravel, and two small shrimps.

Sept. 1.
Lat. 73° 37′ N.
Long. 77° 25′ W.
Var. 110° 00′ W.

At six the boats returned with many specimens of the animal, vegetable, and mineral kingdoms. A white bear had been seen, and wounded, but escaped by swimming to an iceberg. The skeleton of a whale was found about five hundred yards above high-water mark, and two small pieces of wood were found at a still greater distance from the sea. No traces of any inhabitants were seen, and the circumstance of the bones of the whale being entire, seems to strengthen the supposition that this part of the country was not, nor had been, inhabited for a great length of time. The deer, fox, ermine, and white hare, were either seen, or proved to be in abundance, and specimens of the two latter were brought on board. Lieutenant Parry sent some valuable specimens, and the officers of both ships were equally active and zealous. It appeared from the reports of all the officers, that they landed on a shingle beach, at the mouth of a small river, which was described to be one hundred feet wide, and the water two feet deep: the bed was twelve feet deep, and several pieces of birch bark were found in it; and, at a little distance from these, another smaller river was discovered. The valleys from which these proceed, were found to be covered with verdure and wild flowers, the mountains on each side were immensely high, and covered with snow. On the S.E. side of the valley there was a small plain, which was also covered with verdure, and the

Sept. 1. Lat. 73° 37′ N. Long. 77° 25′ W. Var. 110° 00′ W.

scenery, altogether, was much more pleasing than any that had been seen during the voyage. The rise and fall of tide was represented to be by some five, by others four, feet, but the stream was not perceptible; the water was deep close to the shore, and there was no anchoring ground found. The variation

A Copy of the original Meteorological Logs of His Majesty's Ships the Isabella

ISABELLA.

Hours.	Temperature. Air.	Temperature. Water.	Soundings. Depth.	Soundings. Nature.	Height of the Barometer.	Height of the Sympiesometer.	Height of the Attached Thermometer.	Hygrometer.	Cyanametes.	Winds by Compass.	REMARKS.	Officer's Signature.
2												
4	38	36½	.....	.....	29.72	29.72	54	8.10	....	North.	.....	A. M. S. J. C. R.
6												
8	35½	36	.....	.....	29.86	29.78	70	8.30	....	.....	.....	W. R.
10												
12	33	35	120 fms.	no ground	29.79	29.90	64	8.10	....	.....	.....	A. M. S.
2										N.N.W.		
4	34	35½	.....	.....	29.78	29.88	61	7.51	6	West	Var. 115° 33′ W. Per Amp. Hd. No.	J. C. R.
6										S.W.		
8	36	35	674	soft mud	29.63	29.86	58	7.30	....	South	.....	W. R.
10												
12	35½	35	.....	.....	26.29	29.88	56	8.25	....	E. by S.	.....	A. M. S.
2										S.b.E.½E		
4	35	35	.....	.....	29.58	29.66	62	8.11	.....	W.S.W.	Leeway 3 Pts.	J. C. R.
6			650	Mud and worms	.....	.....	....	....	....	N.N.E.	.....	W. R.
8	34½	34½	.....	.....	29.57	29.80	58	8.35	....	N.E.	.....	A. M. S.
10												
12	34	34½	No ground at 70 fathoms.		29.55	29.66	60	9.06	4	.....	.....	J. C. R.
2												
4	35	35	.....	.....	29.60	29.81	56	8.30	....	N.N.E.	.....	W. R.
6												
8	35	35	.....	.....	29.51	29.81	56	8.10	7	N.N.E.	.....	A. M. S.
10											Signal Preparative	
12	36	35	1000fms.	Mud	29.65	29.84	56	7.50	7	North	3. 9. K. Calm.	J. C. R.

The above tables have been examined,

was observed to be 110° west, and the transit bearings of Cape Fanshawe, and the Point near Cape Byam Martin, which were taken yesterday, taken to-day from the opposite bearing; by which it was determined, that the variation where the ship was at noon, on the 31st, was about 114° west.

Sept. 1.
Lat. 73° 37′ N.
Long. 77° 25′ W.
Var. 110° 00′ W.

and Alexander, between Noon, 29 August, and Noon, September 1, 1818.

ALEXANDER.

Hours.	Temperature. Air.	Temperature. Water.	Soundings. Depth.	Soundings. Nature.	Height of the Barometer.	Height of the Sympesometer.	Height of the Attached Thermometer.	Hygrometer.	Cyanameter.	Winds, by Compass.	REMARKS.	Officers' Signature.
2	33	37	....	....	.....	.....	....	4.87	....	North	Temperature at 235 fathoms 29° ¼.	
4	33	37	....	....	.....	.....	....	.....	....	.....	.....	W. P. H.
6	37	36	....	....	29.76	.....	49	.....	....	.....	.....	P. B.
8	35½	35½	....	....	.....	.....	....	.....	....	N. by E. N.	Moderate Breezes.....	J. N.
10	35	36	....	....	.....	.....	....	.....	....	.....	.....	
12	34½	36	....	....	29 80	.....	56	.....	....	N.N.W.	Light Breezes.....	W. P. H.
2	34½	36	....	....	.....	.....	....	.....	....	W.N.W.	Fine	
4	35	36	....	....	.....	.....	.....	.....	....	.....	Moderate and hazy, with small rain.....	P. B.
6	36	36	....	....	29.71	.....	49	.....	....	W. by S.		
8	37	36	....	....	.....	.....	....	.....	....	.....	.....	J. N.
10	37¼	36	....	....	.....	.....	....	.....	....	S.S.E.	Cloudy	
12	37	36	....	....	29.51	.....	54	4.20	....	S.E.	Hazy and small rain.	
2	36	36										
4	36	35½	....	....	.....	.....	....	.....	....	S.S.W.	.....	P. B.
6	36	36	....	....	29.58	.....	56	.....	....	South.	1125 specific gravity, Hazy, with small rain	J. N.
8	35	35½	....	....	.....	.....	....	.....	....	N.E.bN.	.....	W. H. H.
10	35	36										
12	35½	36	....	....	29.59	.....	58	.....	....	.....	Cloudy.....	P. B.
2	35½	36	....	....	.....	.....	....	.....	....	N.E.	Moderate and Cloudy	
4	35½	36	....	....	.....	.....	....	.....	....	.....	.....	J. N.
6	35½	35½	....	....	29.53	.....	48					
8	35½	35½	....	....	.....	.....	....	.....	....	.....	.....	W. P. H.
10	35½	34½										
12	36½	34½	....	....	29.63	.....	55½	5.20	....	.....	Light air.....	P. B.
2	....	....	....	....	.....	.....	....	.....	....	.....	Temperature of the water at two hundred and fifty fathoms 29½°.	

and found correct, by me,

T. HURD, *Hydrographer.*

Sept. 1. Lat. 73° 37′ N. Long. 77° 25′ W. Var. 110° 00′ W.

The boats being hoisted up, and the breeze freshening, we made sail, and stood to the N.E., having given the names of Possession Bay and Possession Mount to the above-mentioned places.

As I have given a particular chart of the bay or inlet which was explored between the 29th of August and the 1st of September, by the Expedition under my command, and as there will be found on the preceding pages copies of the meteorological logs of the two ships, which were supplied and corrected by the Hydrographer of the Admiralty, from the official documents which were lodged in his office, on the arrival of the ships, it must be unnecessary for me to recapitulate the facts which I have already stated, as by referring to these authenticated documents, they will be seen by inspection. But it may not be amiss to point out the parts in my official Instructions which are printed in the beginning of this work, wherein I am directed to pay particular attention to the currents, and to be guided by them; and also to the part which recommends me to look for the north-east point of America; or, in other words, the north-west passage, about the seventy-second degree of latitude. As it was fully proved that no current existed in this inlet which we had just explored, or to the northward of it, it naturally followed that I should have supposed myself still to the northward of the current, which had been so confidently asserted to exist; and that, therefore, this inlet was not the place to persevere in forcing a passage, but that there was reason to expect it would be found further south. My orders "to stand well to the "north," had already been fully obeyed, and no current had

been found; and if "a current of some force" did exist, as from the "best authorities" we had reason to believe was the fact, it could be no where but to the southward of this latitude. As, in my Instructions, I am also directed "to leave the ice "about the 15th or 20th of September, or at latest the 1st of "October," I had only one month left for my operations, in which month the nights are long, and, according to a fair calculation, not more than two days clear weather out of seven could be expected. It may, therefore, with propriety be stated, that I had only eight days remaining to explore the remainder of Baffin's Bay, a distance of above four hundred miles. Of this space, nearly two hundred miles had never been examined; a range, including the supposed place of the discontinuity of the continent, and that to which my attention had been particularly called, and where the imaginary current, which was to be my guide, was to be expected. It is, perhaps, unnecessary to add, that under these circumstances I was anxious to proceed to the spot where it must be evident I had the best chance of success. Yet my anxiety, on the other hand, to leave no part of the coast unexplored, even after all hopes of a passage were given up, determined me to persevere as I did, notwithstanding there was no current, a material decrease in the temperature of the sea, and no driftwood, or other indication of a passage, until I actually saw the barrier of high mountains, and the continuity of ice, which put the question at rest. That I did so persevere, became afterwards a source of great satisfaction, as I was fortunate enough to suceeed also in exploring every

Sept. 1.
Lat. 73° 37′ N.
Long. 77° 25′ W.
Var. 110° 00′ W.

Sept. 1. Lat. 73° 37′ N. Long. 77° 25′ W. Var. 100° 00′ W.

part of the coast to the southward, to which my attention was to be directed, and where I was led to expect that the current was to be found. This was a much more essential part of my duty than the making of magnetical observations, which was the only inducement still remaining to linger in that dangerous bay, where much time might have been wasted in attempting to land, perhaps, without success, or, at any rate, without obtaining any adequate results. My opinions were mentioned to several of the officers, after I had determined to proceed to the southward; and also to Captain Sabine, who repeated, on every occasion, that there was no *indication* of a passage. Lieutenant Parry's ship, the Alexander, being nearly hull down astern at the time I drew the land, and the ice at the bottom of the bay, it was scarcely possible it could be seen from that ship; for, at that moment, she was very indistinctly seen from the Isabella. I, therefore, did not think it worth while detaining the ships for Lieutenant Parry's Report; but it afterwards appeared that the officer of the watch in the Alexander had seen the land at the bottom of the bay. It was also reported to me that the Alexander's deviation had changed in such a manner as to make her bearings of the land of no value for the remainder of the voyage, as will appear by the subjoined official letter*.

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* *His Majesty's Ship Alexander, at Sea, September 1st,* 1818.

SIR,

I HAVE the honour to state to you, that the officers who have charge of the respective watches, on board the Alexander, having on the 27th and

Having determined to quit this inlet, and proceed to the southward, it was my intention to have anchored in some of the bays which appeared to open out to the south of Cape Byam Martin, in order to determine the dip of the magnetic needle, which I regretted had not been observed at Possession Bay. Unfortunately the wind freshened, and a thick fog coming on, we were obliged to stand out to gain the middle of the inlet which we had just explored.

Sept. 1. Lat. 73° 37′ N. Long. 77° 25′ W. Var. 110° 00′ W.

28th *ult.*, reported to me that they had remarked a very perceptible inaccuracy in the compasses, by the ship's lying repeatedly within eight and a half, eight, and even seven points, on both tacks, I took particular notice, on several occasions, of the direction of her head, by the compasses, before and after tacking, and found their report to have been accurate. I select the following instances:

Aug. 27.—8 30 A.M.....	On larboard tack,	W. by S.	}	10 points.
	starboard	S.S.E.		
5 30 P.M.....	On larboard tack,	W.N.W.	}	7 points.
	starboard	S.W. by S.		
about 9 P.M.....	On starboard tack,	S.W.	}	8 points.
	larboard	N.W.		
Aug. 28.—3 A.M.....	On starboard tack,	S.S.W.	}	8 points. much swell.
	larboard	W.N.W.		
6 30 P.M.....	On larboard tack,	N.W. by W. ½ W.	}	8½ points.
	starboard	S.S.W.		

By referring to the diagram of the experiments made on board the Alexander, under your direction, on the 27th July, it appears that the deviation then found, on any of the above courses, is totally inadequate to account for such a difference, the amount being now almost as many *points* in some instances as it then was *degrees*.

This deviation has become less perceptible since the 28th and 29th, though it is still frequently found to be much greater than on the coast of Greenland.

I have the honour to be,

SIR,

Your most obedient humble Servant,

W. PARRY, Lieut. and Commander.

To Captain John Ross, &c. &c. &c.
H. M. Ship Isabella, at Sea.

Sept. 2. Lat. 73° 32′ N. Long. 76° 00′ W.

Early in the morning of the 2d of September, we stood in shore, expecting it would clear, but it continued thick, and came on to blow so fresh as to oblige us to take two reefs in the topsails. The swell from the S.E. also increased considerably, and we found the ships, with every sail that could be carried, scarce held their own against the wind. They both sailed so badly, that when there was the least pitching motion, they did not go above two knots an hour, nor could they be depended on for staying even under all sail. A lee shore was therefore to be avoided as much as possible, and it was thus totally out of my power to obtain a perfect geographical survey of the coast; which was, however, of the less importance from its not being the main object of the expedition. Nothing of consequence happened during these twenty-four hours, nor was there any observation made worthy of remark, except that we found the deviation to be without any alteration since our former trials. Two whales, with very high back fins, were seen about this time, and Mr. Lewis the master said that this species was seldom seen in Davis' Strait; seals were seen in abundance, and some ducks, but none were taken.

September 3. The weather continued thick, but at five o'clock in the morning there was a clear for a short time in the N.N.E. direction, and the officer of the watch reported, that he saw the land*, but before I got upon deck it was obscured. We had here a good opportunity of observing the effect of humidity

* This land must have been by its bearings Cape Clarence, and was distant one hundred and twenty miles.

on the deviation, and it was found to correspond with the former observations. After standing for some time to the E.N.E., we wore and stood to the southward, but the wind still increasing, the top-gallant yards and royal masts were struck, the swell which came from the S.E. was the highest we had yet seen, and as the ships were now unable to hold their own, it was fortunate we had a good, offing. In the afternoon the wind began to abate, and at four it cleared: the weather became gradually moderate, and at seven it fell calm. We had good azimuths at the prime vertical, and found that the variation had decreased a little: there was too much swell to obtain soundings in deeper water than one hundred and fifty fathoms, and we found no bottom with that length of line. At sun-set, 8 P. M., the land was seen from W. by S. to S.S.W.; and we found ourselves still off Lancaster Bay, both the barometer and sympeisometer fell very low, which was the first time they had deceived us, but the barometer fell most in proportion. As soon as the ships would steer, they were kept for the southernmost land in sight: numbers of birds of the guillemot kind were seen flying to the southward.

Sept. 3. Lat. 73° 45′ N. Long. 74° 10′ W. Var. 105° 51′ W.

Sept. 4. The weather continuing moderate, and the wind still to the eastward, we made for the most southern point we had seen yesterday, and in the morning we passed the two inlets to the southward of Cape Byam Martin, which had the appearance of harbours; but, on a nearer approach, we discovered them to be filled with large glaciers of ice, and quite impenetrable. A cape, which appeared to the southward of

Sept. 3. Lat. 73° 45′ N. Long. 74° 10′ W. Var. 106° 51′ W.

these inlets, was named Cape Bathurst, and the bay between it and Cape Byam Martin, was named Bathurst Bay. At ten the sun appeared, and, in a short time, it became quite clear, so that we distinctly saw the land extending to the southward as far as S.S.E., the coast running north and south for about fifteen leagues, and then trending to the south-eastward. It appeared to be an uninterrupted continuation of the chain of mountains which has been before described as surrounding the coast from Cape Clarence; the farthest extremity, which was very distinct, was about thirty leagues distant, bearing about S.S.E. Being disappointed in finding a harbour, into which we might enter, and determine the magnetic force and dip, and being anxious to obtain it, I sent Captain Sabine and Mr. Bushnan to a very large iceberg which was near us, but they did not succeed in getting on it. A thick fog coming on, guns and muskets were fired to shew them our position; but, at six, they returned, and reported that this iceberg had motion, and, consequently, the observations could not be made; and as the wind returned to the south-east, I was obliged to stand off shore. By several bearings off Cape Byam Martin and Cape Bathurst, the deviation was again determined to be without alteration in the Isabella, and good observations were obtained for both latitude, longitude, and variation, which will be found on the margin. During this evening we kept company with the Alexander by musketry. At ten P.M., a light breeze sprung up for the N.E., and I steered S.E. under all sail, taking the usual precautions, and heaving

to for the purpose of sounding, when sufficiently a-head of the Alexander; but the swell was so great that we could not sound in deeper water than five hundred and fifty fathoms, where no bottom was found. A new main-sail was bent, and other preparations made against the gales which might be expected this month. When the wind came fair this evening, we had the utmost difficulty in shaping our course, as it was a thick fog, and the ship having considerable motion, the compasses all ceased to act. As there was no object in sight by which the helms-man could be directed, we had recourse to firing guns to the Alexander. By the sound of her guns, in answer, it was found the wind was to the N.E., and it was brought on the larboard-beam accordingly. Alexander of Leith, and Crow of Gravesend's compasses were found to be the first that began to act, when the motion and the humidity became less. At midnight the weather cleared up, and we saw the Alexander, and were enabled easily to continue our course, which we did under all sail.

Sept. 3.
Lat. 73° 45′ N.
Long. 74° 10′ W.
Var. 105° 51′ W.

CHAPTER XI.

CONTINUE OUR PROGRESS TO THE SOUTHWARD, EXPLORING THE WEST COAST OF BAFFIN'S BAY—CAPE GRAHAM MOORE—POND'S BAY—COUTT'S INLET—DISCOVERED LAND TRENDS TO THE EASTWARD—NORTH GALLOWAY AND NORTH AYR DISCOVERED, AND NAMES GIVEN TO VARIOUS PLACES—LAND ON AN ISLAND NEAR CAPE EGLINTON, WHICH IS NAMED AGNES MONUMENT—COAST TRENDS TO THE SOUTHWARD—CONTINUE EXPLORING IT, AND REACH CAPE WALSINGHAM.

Sept. 1. Lat. 72° 37¼′ N. Long. 74° 13½′ W.

Sept. 5. WE continued to make a south-east by south course, in which direction I had seen the southern extremity of the land before the fog came on, which, however, had now completely cleared away. At day-light we found ourselves about six leagues from Cape Bathurst, and, at four, we hauled in to take a better view of the coast, and came within a few miles of a high cape, which was named after Sir Graham Moore. To the southward of this we opened out a wide inlet, which had, at first, the appearance of a strait, but it was soon discovered to be occupied by a large glacier, which extended a considerable distance into the sea; to this I gave the name of Pond's Bay, in compliment to the Astronomer Royal. To the southward of this we passed two capes, which were named Cape Bowen and Cape M'Culloch; we were abreast of the latter at

noon, and found it to be, by its bearings, in latitude 72° 13′ N., and longitude 74° 17′ W.; a small bay between them was filled with ice. We continued to run down the coast until we were abreast of a very remarkable inlet, when we were becalmed. To this bay, which was also discovered to be surrounded by land, and occupied by ice, I gave the name of Coutts' Inlet; and to the capes which formed its entrance, that of Coutts' to the north, and Antrobus to the south: a view of this part of the coast was taken by Mr. Bushnan, and is given in a plate. The mountains in the interior were more completely covered with snow than those about Cape Cobourg; but the faces of those near the coast were clear of snow, as were also some low projecting points of land.

Sept. 5. Lat. 72° 37¼′ N. Long. 74° 13¼′ W.

At sun-set, the land, forming a continuation of the same chain of mountains which have been described in the last Chapter, was seen distinctly as far as S.E., extending to the distance of thirty leagues, the line of coast taking gradually a more easterly direction. Several very large icebergs were here seen, which had no doubt been generated under some of the precipices on this part of the coast, and were floating about in every direction. During this day we had run down above seventy miles of the coast, and I was completely satisfied there could be no passage any where between lat. 73° 33′ and 72°. As we had run a great distance from the Alexander, we hove to, that she might have an opportunity of joining us, and in the mean time we sounded in one hundred and twenty fathoms, and found sandy mud. On the Alexander joining, we learnt

Sept. 6. Lat. 72° 23′ N. Long. 73° 07½′ W.

that the observations made on board the two ships agreed, and that neither of us had observed that any part of this coast was inhabited. Two whales were seen off the entrance of Coutts' Inlet, but no birds except our constant attendants the Fulmar peterels. In the evening the wind fell, and we pursued our course under an easy sail.

Sept. 6. Very soon after midnight it fell calm, and after day-light there were some light and variable airs of wind. At eight it again fell calm, and continued so the whole day. The ship's head had, however, generally been kept near the course, by the assistance of the swell, which was from the north; and we made fourteen miles of southing, and a degree of easting, although the log only gave half as much. We had good observations in the forenoon for the longitude, and for the latitude by the sun's meridian altitude, but the afternoon was cloudy. At six, it being quite calm, and the water smooth, we sounded with the deep sea clamms, and found one thousand and fifty fathoms, which were the deepest soundings we ever reached in Baffin's Bay. As we had only one hundred and twenty fathoms fifteen miles further north, it is evident, the bottom of the sea, like the land, must here be very mountainous. The mud at the bottom was so extremely soft, that the instrument sunk completely into it, and considerable force was required to draw it out. The sea being a dead calm, the line became perfectly perpendicular, and we had a good opportunity of obtaining the exact depth before it started out of the ground. The instrument came up completely full, containing about six

pounds of mud, mixed with a few stones and some sand. Although this mud was of a substance to appearance much coarser than that which we had before obtained, it was also of a much looser nature, and had in it no insects or organic remains; but a small star-fish was found attached to the line below the point marking eight hundred fathoms. The instrument took twenty-seven minutes to descend the whole distance. When at five hundred fathoms, it descended at the rate of one fathom per second, and when near one thousand fathoms down, it took one second and a half per fathom. Although the check the instrument made to the motion of the line when it struck the bottom was evident to all, I wished to put the fact beyond doubt; and for this purpose, I set the instrument so nicely that the least resistance at the bottom would make it act, and having attached the self-registering thermometer to it, I let it down first to five hundred fathoms, and in the same manner to six hundred, seven hundred, eight hundred, and a thousand, in succession. At each time it came up empty, and the thermometer each time shewed a lower temperature, proving clearly that the water was colder as it became deeper, and also indicating that the instrument had *not* reached the bottom, even as far as the depth of one thousand and five fathoms. It occupied one hour for all hands to pull it up from that depth, and an account of the temperature of the sea will be found in the Appendix. This evening land was distinctly seen bearing S.E., and a yellow sky appeared two points further eastward. To the land abreast of us, which had never

Sept. 6.
Lat. 72° 23′ N.
Long. 73° 07½′ W.

Sept. 7. Lat. 72° 16¼′ N. Long. 71° 46¼′ W. been seen by any former navigators, I gave the name of North Galloway, and to the bays and capes various names, which will be found in the chart. This land was very high, and of the same description and appearance as that which we passed yesterday. Every creek was completely filled with ice, and the land was certainly continuous. There were no appearances of its being inhabited, no current was found, nor could any tide be perceived.

Sept. 7. During the night the swell subsided, and the calm continued until seven this morning, when a shower of snow brought with it a breeze which lasted an hour and a half. This wind was variable, but we were able to continue our course along the land, which took a south-east direction. We sounded with a heavy lead, of one hundred pounds weight, and found one thousand and fifteen fathoms. It reached the bottom in 21′ 2″, and was hauled up in forty-eight minutes. The lead, which was observed distinctly to strike the bottom, appeared, when it came up, to have been, like the clamms, sunk more than its own depth in the mud. After this experiment, the clamms were sent down, with a self-registering thermometer attached to it, to one thousand and five fathoms, and the temperature of the sea at that depth was ascertained to be twenty-eight and a half: the instrument, coming up without any thing in it, proved that it had not been at the bottom. The furthest land distinctly seen to be continuous with that abreast of us, was named Cape Adair, which is in latitude 71° 24′ N., and longitude 70° W. This part of the coast, which is also

very high, forms a curve, and within it are two small islands. To one of these I gave the name of Bell Isle, and to the other Marianne Isle. A great number of icebergs and glaciers were here seen, and every inlet was filled with them. Immediately after we had finished our experiments, a breeze sprung up from the S.E., and we stood in shore under all sail, continuing to beat along it at the distance of from four to six leagues. On tacking, the deviation was observed to be four points, that is, two points nearly on each side, which was the same as before observed; for the wind being S.S.W., the ship lay on one tack W.N.W., and on the other E.S.E.; on the former tack, the wind *appearing* to be S.W., and upon the latter tack to be south. At four P. M., the breeze freshened very considerably, and the weather became thick, in consequence of which the rigging was soon covered with ice. At six, the royal masts were struck, and at eight the top-gallant yards were sent down, and the topsails double reefed. It was evident the ships did not hold their own, and it was necessary to get a better offing, especially as the wind shifted more to the eastward. Towards midnight, the swell from the S.E. had got up considerably,—the ships made a great deal of drift, owing to the want of gripe and forefoot. The wind was now south by compass, and, in consequence of the deviation, the ships appeared on one tack to lie east, and on the other west. Having got an offing of seven leagues, we stood off and on, so as to keep about that distance, until the weather moderated and cleared.

Sept. 7. Lat. 72° 16½′ N. Long. 71° 46½′ W.

Sept. 8. The weather moderated this morning, and we

Sept. 8. Lat. 72° 16′ N. Long. 71° 06′ W.

began again to get to the S.E., but it was thick until noon, when it cleared sufficiently to allow of a tolerable observation being obtained. We then altered our course, so as to close the land, and made all sail. At sun-set we saw the coast between Cargenholm and Hamilton's Bay; and having then out-run the Alexander seven miles, we shortened sail, and she joined us about 7ʰ 30ᵐ. I received Lieutenant Parry's reports, and found that her deviation had been, in one instance, five points; for this he did not assign any cause, but as I learned that some iron casks had been removed, which had previously been secured on the quarter-deck, it is probable that this was the cause of the difference. The rest of Lieutenant Parry's reports were very satisfactory; his observation by chronometer and latitudes, and meteorological journal, agreeing with ours. Our stock of vegetables being expended, I gave orders for serving a certain proportion of preserved meat and soup, in lieu of a part of the salt provision, in order to prevent scurvy.

Sept. 9. During the night the wind had shifted to the north, and the course was shaped for Cape Adair, which had been seen last night; but the day continuing snowy and thick, it was necessary to give that point a good birth. I, therefore, ran on a parallel with it until I was sure I had passed it about three leagues, and then hauled our wind direct for the shore, taking the usual precautions of sounding and looking out, which have been already described. We saw several streams of ice, and, at four P.M., the land was discovered, appearing, at first, like islands; but they afterwards proved to be part of

the main land, and to form the N.E. point of this coast. This land bore S.W., and Cape Adair was seen soon after bearing N.W. The land between them soon appeared, and when discovered to be continuous, we bore up for the Cape which was first seen, and which I named Cape Eglinton, in compliment to the noble Earl; and the bay to the northward of it was called Scott's Bay. Having arrived within six miles of Cape Eglinton, we sounded in forty-nine fathoms, and discovered that the land trended towards the south. As this country was also a new discovery, I named it North Ayr; a low point, which was seen, and supposed to be an island, to the north of the Cape, was called Horse Island, from its resemblance to the island of that name off Ardrossan; and a bay, which had the appearance of a good anchorage, was called Ardrossan Bay, from its resemblance to that harbour on the coast of Ayrshire. I intended to put into this bay for the purpose of making observations, and accordingly stood off and on, at the distance of four miles, having from thirty-eight to one hundred fathoms, until day-light; but unfortunately the ships had drifted too far to leeward, having been obliged several times to bear up in order to avoid ice, and in the morning we could not fetch within three miles of the point. This part of the coast assumed a different character from that to the north; the mountains being more detached, of a rounder shape at the tops, and less covered with snow; but in the interior they were equally high, and had the same appearance.

Sept. 9. Lat. 71° 22½′ N. Long. 68° 26′ W.

Sept. 10. The weather appearing fine, we bore up along the

Sept. 10. Lat. 70° 40′ N. Long. 68° 00′ W.

land, at the distance of three miles from it, and rounded a low point, from which a reef appeared to extend about a league into the sea. This point had no snow on it, and the mountains behind it appeared to have been only recently covered. A small island was discovered to the southward, and a boat was sent with a party to take possession of it in the usual form. They found some difficulty in landing, but at last effected it on the south side; and having examined it, they set up a flag-staff, left a bottle with an account of their proceedings, and returned. They found that this island had been recently inhabited; the remains of a temporary habitation, a fire-place, a broken stone vessel, a part of a human skull, some bones of a seal, some wood partly burnt, and a part of a sledge, were brought on board. The tracks of dogs were also seen, and some stones were found set up in a particular manner.

This island, which was named Agnes Monument, is nearly circular, is about forty feet above the level of the sea, and is flat at the top, being rather highest towards the N.W.; it is bold all round, except at a short distance from the N.W. and S.E. sides; and the tide was observed, at ten o'clock, when it was high water, to be setting to the southward, at about one mile per hour. This island was in the mouth of a deep inlet, into which I determined to proceed for the purpose of anchoring and making observations; but at four P.M. a dangerous reef was discovered stretching across its entrance, and I was obliged to haul off. When the boat was absent, two large bears swam off to the ships

A SLEDGE DOG of the ARCTIC HIGHLANDER of Lat. 77. N.

HEAD of a WHITE BEAR.

which were at the distance of six miles from the land; they fetched the Alexander, and were immediately attacked by the boats of that ship, and killed; one which was shot through the head, unfortunately sunk; the other, when he was wounded, attacked the boats, and shewed considerable play, but was at length secured, and towed to the Isabella by the boats of both ships. In this affair, Mr. Bisson, Mr. Nius, midshipmen, and Mr. Fisher, assistant-surgeon of the Alexander, shewed much dexterity and address. This animal, which is fully described in the Appendix, weighed one thousand one hundred and thirty-one pounds and a half, besides the blood it had lost, which cannot be estimated at less than thirty pounds; his dimensions were carefully taken, and Mr. Beverly undertook to preserve his skin, in which he perfectly succeeded, the bones of the head and feet not having been removed but preserved in their places; he was sent to the British Museum in excellent order. In the evening we stood to the eastward, to get out of the influence of the tide which changed about six, and set to the northward, at the rate of one mile an hour. This inlet is bounded by high mountains, those in the interior only being covered with snow; it appears to be the mouth of a small river, and was named Clyde River, and the island to the north was named Haig's Island, and that to the south was named Bute Island, in compliment to the noble Marquis. The icebergs which were seen this day had much the appearance of low islands, and there was much loose ice about them, the whole appearing

Sept. 10.
Lat. 70° 40′ N.
Long. 68° 00′ W.

Sept. 11. Lat. 70° 34½′ N. Long. 67° 46¼′ W. Var. 75° 00′ W.

to have lately been separated from the land. Some large whales were seen in the morning *running** towards the south.

Sept. 11. The wind was against us, but the weather being moderate during the night we carried all sail, stood off until two A.M., then in shore. At day-light we saw the land, and the weather was very clear; we plainly distinguished the land to the north of Cape Adair, at the distance of twenty leagues, and recognised it to be the same we had seen on the 5th instant. The land, bearing S. by E., was also seen at the same distance; and, about S. by W., a very remarkable mountain, resembling a pyramid of great height, appeared, detached from the rest, which formed a continuous ridge. The whole of this part of the coast is lower near the sea than it was to the northward, the chain of mountains being inland, at a distance of fifteen or twenty miles. Between these mountains deep valleys were seen, which were probably the channels of small rivers that fall into the bays and inlets which are every where to be found on this coast.

At eight o'clock this morning we were seven leagues to the eastward of the rock, or island, we named Agnes Monument; and two miles to the eastward of us we discovered the largest iceberg we had ever seen at such a distance from the land. As it was nearly calm I thought it a good opportunity to obtain its

* A term used when whales are swimming with great velocity on a particular direction.

size by actual measurement: and for this purpose I sent Lieutenant Parry, Mr. Ross, and Mr. Bushnan, and, at the same time, a party, with the necessary instruments, to obtain, by landing on it, the magnetic dip and variation; and, in the mean time, we stood towards it with a very light air. The party had some difficulty in finding a place to land. In rowing round it they found it perpendicular in every place but one, where there was a small creek, and in which a convenient landing-place was discovered. When they had ascended to the top, which was perfectly flat, they were received by a white bear, who was in quiet possession of this mass. As some of their fire-arms had got wet, it was some time before dispositions could be made for an attack; during which the animal seemed to wait with patience for an assault, but as soon as they had formed their line, and began to advance, he seemed to be conscious of their superiority, and made for the other side of the island. Our party had not calculated on any other way to escape but the landing-place before mentioned, which they left well guarded; but to their mortification, as well as astonishment, when the animal came to the edge of the precipice, fifty feet high, he plunged into the sea without hesitation, and, there being no boat on that side of the island, he escaped. The party remained until sun-set, had good observations; and Lieutenant Parry reported to me, that the iceberg was four thousand one hundred and sixty-nine yards long, three thousand eight hundred and sixty-nine yards broad, and fifty-one feet high, aground in sixty-one fathoms; and that it had nine

Sept. 11.
Lat. 70° 34½′ N.
Long. 67° 40½′ W.
Var. 75° 00′ W.

Sept. 12.
Lat. 70° 42′ N.
Long. 64° 37′ W.

unequal sides. Its appearance was much like that of the back of the Isle of Wight, and its cliffs exactly resembled the chalk cliffs to the west of Dover. In the evening the breeze which had sprung up from the southward freshened, and as soon as the boats returned, we passed under the lee of the iceberg, and stood off shore. We found our observations on board to agree with those made on the berg, and we found the latitude pretty exact, by Cole's method, and, soon after dark, by the pole star. Lieutenant Parry reported another change on the Alexander's deviation.

Sept. 12. The weather being clear, and the wind in such a direction that no progress to the south could be made, I resolved to stand across to the eastward, in order to determine if there was any land or not, between the west and east sides of this part of Davis' Strait. All sail was accordingly made, and we stood to the eastward. At day-light it was blowing fresh, and we were obliged to reef the topsails and strike royal-masts. At ten it came thick, and the Alexander being eight or nine miles astern, we shortened sail. We saw a great deal of loose ice, and passed through a stream of it, and many large icebergs were seen. At ten it became thick, and the ropes were covered with ice: we had, during the whole day, a heavy fall of snow. At four P.M., we were about mid-channel, when a bottle and a copper cylinder, each containing an account of our proceedings, were thrown overboard. While we hove to for the Alexander, I sounded in two hundred and ninety fathoms, and had hard bottom: no current was perceived, and if

there was any, we must have seen it, for we passed several icebergs which lay aground. As we knew we should not be able to fetch that part of the west coast which we had left, we continued our course to the eastward; and, in the evening, the wind moderated, but the weather was still very thick. Sept. 13. Lat. 70° 41′ N. Long. 62° 24′ W.

Sept. 13. We stood on until day-light, when the wind shifting to the S. E. made it necessary to tack. We were at that moment one hundred and twenty miles to the eastward of the coast we had left; the weather became clear, and we could certainly see ten leagues in that direction. It was therefore fully ascertained, that no land existed in the channel of Davis' Strait, about the latitude of 70° 40′; for our track from the opposite nearly meets the one from this side, and consequently there is no such land as James's Island, which is laid down in most of the charts. We now stood back to the westward; and, in passing some loose ice, we saw a bear on one piece, which we ascertained to be one hundred miles from the land. We had good observations for both latitude and longitude.

Sept. 14. During this night, which was extremely dark and thick, the utmost caution was necessary to keep clear of the ice. We had close-reefed top-sails, and the main-sail furled, the royal masts and yards struck, and a very heavy sea. The Alexander got much astern, and to leeward, probably by being obliged frequently to bear up for ice. She was not in sight at day-light; we therefore wore, and bore up to look for her, and, at five, discovered her to leeward. As soon as we joined

Sept. 14. Lat. 70° 19½′ N. Long. 65° 30′ W.

her, all sail was made, but the wind fell considerably, and soon after came to the N.E. At noon, we had a good meridian altitude; we sounded, and found five hundred and seventy fathoms in soft greenish mud; we had no observations for longitude, but by reckoning we were sixty miles to the eastward of the land we had left. The wind then increased, and we ran a-head of the Alexander; and, towards evening, made the land. The weather then coming thick, we hove to for her, and, after she joined, ran till eight; when, by reckoning, we were in latitude 70°, and thirty-six miles eastward of the land we had seen on the 11th. We then hauled our wind to the eastward under the topsails, it being too thick to run. During the whole of this day we had much swell from the S.W., which, however, abated considerably towards the evening. We saw many icebergs and some loose ice.

Sept. 15. We maintained our position during the night, and in the morning, the weather, though still cloudy and hazy, was more favourable for closing the land than it was yesterday; and the wind, being from the north, with a commanding breeze, was very advantageous, as it admitted of our hauling off on the appearance of danger. The swell continued, but its direction was rather more from the eastward. At seven, A. M., we discovered a cluster of islands, which we afterwards found to be five in number, and that they were two leagues distant from the main land. We supposed them to be the Salmon Islands, as they answered the situation, as to latitude, in which islands of that name are placed in some charts. We passed these at

the distance of three leagues, and run along the land, which was low near the sea: the names of several capes and bays which we explored sufficiently to determine the continuity of the coast, will be found in the chart. The mountains were not so high, or so much covered with snow, as those forty miles to the northward, and they were also at the distance of several leagues from the sea. A low point was seen about noon, bearing S. by W.; and, from the end of it, a reef of icebergs which appeared to be aground, denoted shoal water. This was found to be a bank, having no more than eighteen fathoms on it, extending to the eastward as far as could be discerned from the mast-head; and we found the tide running across it to the southward, at the rate of two miles and a half an hour. This shoal, which I named Isabella Bank, must prevent the possibility of ships passing to the northward along this coast, until late in the season; for the icebergs, which are aground on it, must support the floes which drift down from the north, and by preventing them from being carried to sea by the wind and tide, keep this part of the strait a long time impassable. Near the north edge of this bank we found the water deep, and we came suddenly into a rippling of the tide, in which we had first thirty-five and then twenty fathoms. The water now became smooth, and I was obliged to carry more sail than I could have wished, in order to ensure that the ship should not be carried foul of the icebergs between which we were forced to pass. The anchors were prepared, the lead kept going, and the ship's company stationed to act as might be necessary.

Sept. 15. Lat. 69° 25′ N. Long. 64° 42′ W.

Sept. 15. Lat. 69° 25′ N. Long. 64° 42′ W. For three miles we had from twenty-four to nineteen fathoms; and were, when on the centre of it, at the distance of eight miles from the point before mentioned, and which I now named Cape Kater. The quality of the soundings was very various; we had, successively, fine, coarse, grey, and red sand and mud; on the shoalest part we had stones, and on the edges coral and shells. The south edge appeared to be equally steep with the north, as from twenty-four fathoms we fell suddenly into fifty, after which no bottom was found in one hundred fathoms, and in two hours afterwards we hove to, and sounded in four hundred and seventy fathoms, finding soft mud. To the south of this we discovered a spacious bay, in which was an island, to which I gave the name of Wollaston Island; this was surrounded with ice. We ran along the coast until near dark, when we hove to for the Alexander, which was at a considerable distance astern. At eight, we hauled to the east, and stood off and on, it being too dark to run or examine the coast. We observed that the tide changed at four o'clock, and then ran to the southward; and, by the icebergs, the water seemed to have fallen eight feet, (the moon was one day past full). At half-past ten, we fell in with a stream of ice, to avoid which, we were obliged to wear ship; this carried us nearer the land, and more into the influence of the tide than I could have wished; but it could not be avoided. At midnight, we had showers of snow, and cloudy weather.

Sept. 16. At day-light we found we had been carried by the tide considerably to the southward, and the wind

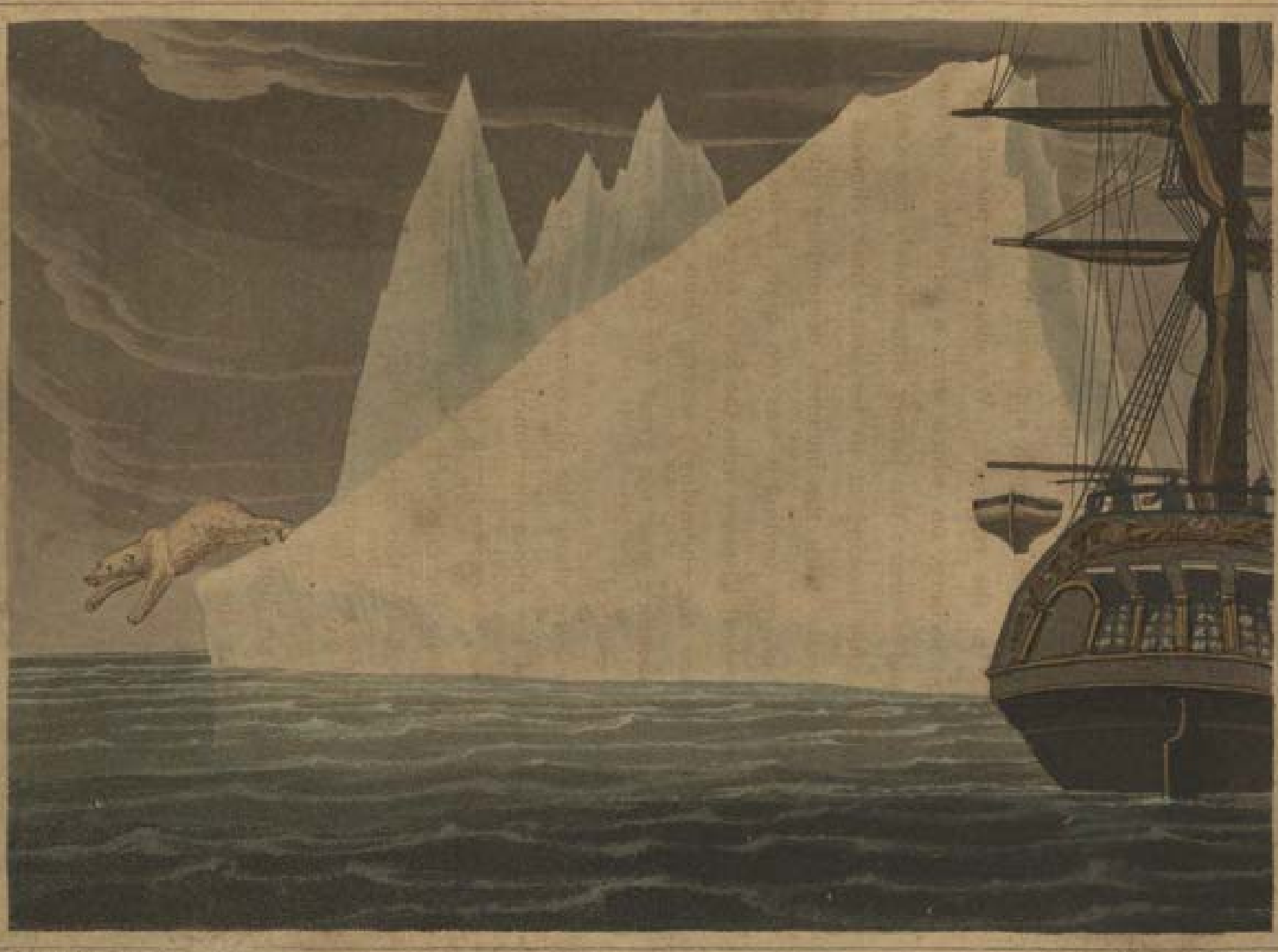
being N. by E. we made sail for the land, which we discovered at four o'clock, at the distance of three leagues, forming a number of capes and inlets; at the same time we found ourselves embayed in a stream of heavy ice, which, however, appeared so much broken, that a passage through it seemed practicable, notwithstanding there was a considerable swell. We, therefore, bore up and forced through it; but we had no sooner reached the south side, when we discovered that, at a short distance further it was impenetrable, and that the land, extending far to the eastward, made it necessary to haul our wind immediately, in order to extricate ourselves. Although the greatest care was taken in cunning the ship through the innumerable masses of ice which surrounded us, a press of sail being absolutely necessary, the ship unavoidably received many severe shocks, but met with no material damage. The tide, which had been setting us rapidly to the southward, changed at half-past ten, and had the effect of opening the ice considerably, as well as of setting us to windward, and we appeared to gain ground by the icebergs which were near us, which we found were all aground on the edge of a shoal; on this we sounded in thirty-five fathoms, had no doubt but the water was much shallower further to the southward, as we observed field-ice fixed on it, and extending to the southward as far as could be distinguished from the mast-head; at the same time the eastern extremity of this field was discovered at the distance of twelve miles from us, and round it we had to beat. We named this shoal, Alexander's Bank, and

Sept. 16.
Lat. 69° 05′ N.
Long. 64° 48′ W.

Sept. 17. Lat. 68° 07½′ N. Long. 63° 00′ W. the headlands within it, already mentioned, were named after the officers of that ship.

At three o'clock, when it was near the top of high water, we weathered the field-ice and bore up in order to force a passage through a stream which appeared to run between it and a large floe to the eastward. We soon after passed very near to a large iceberg, on which were a large bird, of the falcon kind, and a bear; the former immediately flew away, but the latter, after looking at us for some time, climbed to the top, apparently with the intention of jumping into the sea from it, but, on finding it was too high, he descended, and when at a short distance from the lower edge, he plunged into the sea (see the engraving); several shots were fired at him, but the distance was too great for the balls to take effect, and he escaped.

At five o'clock we chose the place most easy to be forced in the stream of ice above mentioned, and which was effected in about an hour, when we again found ourselves in the open sea. We ran along the edge of the land ice until sun-set, when we shortened sail for the night. During the whole of this day the Alexander was managed with much skill and ability; she carried sail and kept up with the Isabella to admiration, and it must be attributed to the exertions of her commander and officers, that she was not necessitated to pass the night among the broken ice, which, with the heavy swell we found there, could not fail to have been attended with serious consequences. We had a good opportunity of making observa-



A BEAR PLUNGING INTO THE SEA.

tions on the tides, which confirmed those we had made yesterday. We had no meridian altitude of the sun, but by Mr. Cole's method, we found ourselves at three o'clock to be in latitude 65° N.; we had clear weather at sea, but the land was obscured by fog in the evening.

Sept. 17.
Lat. 68° 07½′ N.
Long. 63° 00′ W.

Sept. 17. The night was clear, and we had several observations for latitude by the polar and other stars, and I had also good lunar distances between the moon and Aldebaran, by which the longitude was determined. At day-break we steered for the land, and saw what bore south yesterday bear now due west, having closed it to a sufficient distance for determining its continuity. We bore up, and, running along it, discovered that it took an easterly direction; several names were given to the different head-lands and bays which we passed, none of which were free of ice or had the least appearance of a passage. Bearing S.E. of us we discovered a promontory which I named Cape Broughton; this seemed to terminate the land, but in the evening the yellow sky was seen, and another Cape which was named Cape Searle, was discovered; the bay between them is called Merchant's Bay, and was full of ice. The chain of mountains which was still uninterrupted, seemed now to rise from the sea, and its direction was north and south, the last named Cape being, however, a few miles to the eastward. At the distance of eight leagues from the land, we found one hundred and eighty fathoms; several icebergs but no loose ice remained on this part of the coast. At sun-

Sept. 18. Lat. 67° 27′ N. Long. 61° 17′ W. Var. 69° 00′ W.

set we reefed the topsails and hauled our wind for the night, having, as usual, joined the Alexander.

Sept. 18. The night proving fine, and the sky clear, we had excellent observations for latitude and longitude. I found the lunar observations to agree exactly with the means of the five box chronometers. At two A.M, we tacked and stood for the land, which, at day-light, was seen extending from N.W. to S.S.E., and quite clear of fog; the mountains were very high and irregular. A very remarkable rock, resembling a castle, or tower, forms the point of a large bay, or inlet; this, we had no doubt, was Dyer's Cape, and the inlet to the south was Exeter Bay, discovered by the celebrated navigator Davis. We had this day good observations for latitude, and distances of the sun and moon for longitude. We explored the coast as far as latitude 66° 50′, when a Cape, which we supposed to be the Cape Walsingham of Davis, was seen to the southward. At sun-set we hove to, as usual, to sound, and give the Alexander an opportunity of joining; and we found bottom at the great depth of one thousand and seventy fathoms, and obtained a quantity of very soft mud of a rusty colour. When the Alexander came up, I made the signal for Lieutenant Parry to return sealed orders, and I delivered to him other orders instead of them, to be opened in case of parting company: his observations and reports were found to agree with ours, excepting about the bearings of the land, which difference was no doubt, occasioned by the uncertainty of the deviation

of the magnetic needle in that ship. The wind, during this day, was light and variable; towards night it settled to the northward, the weather also became cloudy, and no observations were obtained.

Sept. 18.
Lat. 67° 27′ N.
Long. 61° 17′ W.
Var. 69° 00′ W.

During the whole of our progress, related in this chapter, a bottle, or a copper cylinder, containing an account of our proceedings, was thrown over-board every day, as soon as the ship's position had been determined.

CHAPTER XII.

PROCEEDINGS OFF CAPE WALSINGHAM AND MOUNT RALEIGH—EXPERIMENTS ON THE TEMPERATURE OF THE WATER—THE BREADTH OF DAVIS' STRAIT, AND NON-EXISTENCE OF JAMES'S ISLAND DETERMINED—PROGRESS TO THE SOUTHWARD—SANDERSON'S TOWER—SEVERAL ISLANDS DISCOVERED—ARRIVE OFF CUMBERLAND STRAIT—DEPARTURE TAKEN FROM RESOLUTION ISLAND—ATTEMPT TO MAKE CAPE FAREWELL—A DREADFUL STORM—ARRIVE AT SHETLAND.

Sept. 19. Lat. 66° 50½′ N. Long. 60° 30′ W.

Sept. 19. CAPE Walsingham was this morning seen to the S.W., at the distance of ten leagues; we stood towards the land with a light breeze, and discovered a high mountain, which we took to be Mount Raleigh of Davis, but the tops of the mountains, this day, were generally obscured with fog, and the sun was only seen when near the meridian. Some birds were observed, which it was, at first, thought were of a new species, and a boat was sent to procure specimens, but they turned out to be the little awk changing its colour, the feathers on the back being partly grey; specimens of them were preserved. In the afternoon it fell quite calm, when we sounded in six hundred and sixty-eight fathoms; I thought it a good opportunity to try the temperature of different depths by means of the self-registering thermometer, and it was found to be as follows:

at six hundred and sixty fathoms, 25½°; at four hundred, 28°; at two hundred, 29°; at one hundred, 30°. The bottom was mud of a yellowish rusty colour, and very soft. The tide, whether from our increased distance from the land, or the state of the moon's age, was considerably diminished in strength; and, when tried, its velocity was found to be scarce half a mile an hour. In the evening the wind sprung up from the southward, and we stood off shore, being unable to make any progress against it.

Sept. 20. Lat. 66° 44′ N. Long. 59° 20′ W.

Sept. 20. The night continued moderate, but cloudy, sometimes the aurora-borealis could be faintly distinguished; the wind being against us we still stood off shore, but towards morning it shifted a little in our favour, and we again stood for the land, and thereby gained a few miles southing. At noon the Cape was seen to the S.W., at ten leagues' distance. The sea was much smoother than it had been for some days, and the breeze being steady, I determined to stand off shore for the night, because it was the best tack for gaining ground upon, and because we had a chance of making the east side of Davis' Strait without losing time. Nothing remarkable took place, and our observations tended to confirm those of yesterday. After dark the breeze freshened, and the swell increased proportionably.

Sept. 21. Towards morning the weather became clear and fine, the sea was smooth, and we had a series of good observations; *viz.*, for the latitude by the polar star and meridian

Sept. 21.
Lat. 66° 56′ N.
Long. 56° 28′ W.
Var. 66° 00′ W.

altitude of the moon; for the longitude, distances of the moon from Pollux; and, for time, the altitude of Capella. The different observers agreed within a few seconds of each other, and the means of all observations agreed with the chronometers.

At eleven, we had the further satisfaction of making the land we had seen on the 7th of June, near Queen Anne's Cape, on the east coast of Davis' Strait, which completely proved our longitude was correct. At noon we sounded in forty fathoms; a few miles further off shore than where we had, on the 7th of June, sounded in thirty-five fathoms; we then tacked and stood to the westward. By this, and our stretch across from Cape Eglinton, it was fully determined that James's Island did not exist; and that the land, which has been mistaken for it, is Cumberland of Davis, on which we found Cape Walsingham and Mount Raleigh, exactly in the latitude in which that navigator placed them, and differing only in longitude, like all other places in this part of the world. In the evening the breeze, which had gradually increased, reduced us to close-reefed topsails. The royal masts and top-gallant yards were struck, and the crow's-nest was taken from the mast-head. We stood to the westward, but the gale was driving us up the Strait; and the Alexander, which could not carry sail, got far to leeward, so that we were obliged to bear up, and join her occasionally. Many large icebergs were in sight, and it is worthy of remark, that the highest end of these masses was generally to windward; and we have

before observed, that they turned in this direction almost immediately as the wind happened to change. No observations were made this evening.

Sept. 22.
Lat. 67° 05′ N.
Long. 67° 00′ W.
Var. 67° 00′ W.

Sept. 22. The gale continued the whole day, but neither barometer nor sympcisometer foretold it, nor did either of them fall after it came on. We supposed ourselves about noon to be three-fourths across the Strait towards the west, when we wore, and took up a situation for awaiting a change; we drove directly up the Strait, and besides had to bear up occasionally for the Alexander, which was very leewardly.

Sept. 23. The weather continued very unfavourable the whole of this morning, but the wind and sea were considerably diminished after a very heavy fall of snow, which lasted until three P.M., when it was succeeded by a very thick fog, and in half an hour afterwards it became suddenly clear. The land, the sun, and the moon, were seen at the same moment, and good observations were made. In the evening the latitude was found by altitude of the polar star; and it is, perhaps, worthy of remark, that we observed the meridian altitude of the moon *below the pole*, exactly on the arctic circle, which we crossed at forty-four minutes past seven P.M.; the wind having shifted to the north, we had a few hours good weather, and at $4^h\ 15^m$ we had the best observations. Mount Raleigh, of Davis, bore west, distant eighteen leagues; this mountain, which is the easternmost on this side of Davis' Strait, is of a pyramidical form, and exceedingly high; our observation makes it in latitude 66° 37′ north, and longitude 61° 14′ west.

Sept. 24. Lat. 66° 18½′ N. Long. 58° 30′ W. Var. 67° 00′ W.

Cape Walsingham being in latitude 66° N. and longitude 60° 50′ W., is the easternmost land, and consequently the breadth of Davis' Strait, at its narrowest part, is about one hundred and sixty miles. Towards evening we sounded and found two hundred and ninety fathoms with soft mud, and a substance like hair in it; we had a light air from the southward, and stood off and on.

Sept. 24. The sky became obscured and the wind to increase about one o'clock, until it brought us under single-reefed topsails; we stood to the eastward or westward, tacking occasionally to take advantage of the wind, which varied sometimes one or two points. The weather was cloudy until near noon when it cleared, and we had a good meridian altitude, and also observations for the chronometers, about two P.M., after which it again became cloudy. We then stood to the westward in hopes of making the land; but in this we were disappointed, and when it became foggy we stood to the southward.

Sept. 25. Lat. 66° 04′ N. Long. 59° 24′ W. ☉ – ☾ 59° 30′ W.

Sept. 25. The wind had gradually moderated during the night, and we made some progress; at eight in the morning we saw an iceberg seven miles to leeward of us, near which we had passed at eight the preceding evening; we had again good lunar distances, which proved that the means of the five box chronometers gave the true longitude, and I determined to correct the rates of each at the end of the month accordingly. Towards noon we fell in with a small iceberg, and as it fell calm soon after, we had an opportunity of pro-

curing as much ice as filled two tanks; the Alexander also received the like quantity. A very thick fog coming on obliged us to give up this pursuit.

Sept. 26.
Lat. 65° 54′ N.
Long. 59° 35′ W.
Var. 70° 00′ W.

The winter being now at hand, and the seamen in want of warm clothing, the slops which were supplied by Government for the purpose were served to the ships' companies, orders being sent to Lieutenant Parry to that effect. The whole of this day the weather was so foggy that the land was completely obscured.

Sept. 26. The fog cleared away about noon on this day, and we saw the berg from which we had procured ice, six miles to the northward of us. At one a breeze sprung up, and we hauled in for the land, which we discovered at four o'clock, bearing from N.W. to S.W., the nearest land being at nine leagues' distance; the coast here seemed to take a south-westwardly direction, the top of Mount Raleigh was distinctly seen like an island at the northern extremity, and was about eighteen leagues distant, and from Cape Walsingham to the south there were a number of small bays and capes, the names of which are given in the Chart, but the continuity of land was perfectly ascertained as far as latitude 65° 30′ N. We sounded in three hundred and seventy fathoms, off the pitch of Cape Walsingham, of which a sketch was taken by Mr. Bushnan; the weather was very clear, and the aurora borealis* was seen until near midnight, when it again became foggy.

* The reports on the aurora borealis will be seen in the Appendix.

Sept. 27. Lat. 65° 30′ N. Long. 60° 15′ W

Sept. 27. This morning we had some difficulty in getting sight of the Alexander, which was necessary before altering the course; we steered S.W. which was nearly in the direction of the southernmost point we saw, and fired guns occasionally to denote our position to her. At one P.M. we saw the land bearing from North to W.S.W.; the intermediate land formed a semicircular bay, and, as far as latitude 65°, was found to be continuous from the northernmost land, which was part of that which we had seen last night; for the wind being light we had made but little progress. In the afternoon we had a light air from the N.E., and we again stood to the S.W., but it fell calm in two hours after; we had observations for latitude during the night by the polar and other stars; after divine service the ship's company were mustered and their clothes inspected.

Sept. 28. At midnight we hove to, having run as far south as the coast had been explored; at day-light it was still hazy, but we made sail for the land, which was discovered at seven o'clock. We ran along this coast and explored it as far as latitude 64° 50′, and at noon sounded in one hundred and fifty-six fathoms; at four o'clock it fell quite calm, and remained so the remainder of these twenty-four hours.

Sept. 29. A light air having sprung up from the westward we stood towards the southward, but the wind soon afterwards backed to the south, and we immediately tacked and stood to the westward; we had numerous good observations both before and after noon. At four P.M we were within four leagues

of the land, in latitude 65° N.; to the north we saw the land which had been discovered yesterday, and had a more perfect view of it. The Cape which we were off last night, which was named Cape Mickleham, seemed joined to the main by a narrow neck of land; to the N.E. of it appeared a bay with three small islands: one was round and flat, and two were conical in shape: within them there appeared to be the entrance of a small river. To the southward of the above-mentioned Cape the land was no less remarkable; near the southern extremity a high conical mountain was seen bearing W.S.W., and a mountain which resembled a martello tower, bore west; this, we had no doubt, was Sanderson's tower of Davis; views were taken by Mr. Bushnan of this part of the coast, which will be found among the engravings. In the evening the wind increased, and had the appearance of a gale: we stood to the southward, along the land, under close-reefed topsails. Sept. 29. Lat. 65° 34½′ N. Long. 62° 11′ W.

Sept. 30. After midnight it came to blow so hard as to oblige us to furl the main-sail, and take in the fore and mizen topsails; but, towards day-light, it moderated, and at three the gale had subsided, and the land was discovered. The wind being to the westward, all sail was made in order to close this land, but we found that the tide was setting us to the N.E. About noon we passed a number of very large icebergs, which we found were aground on a bank, and on which we sounded in eighty fathoms; on each side of this we had one hundred and ten, and at a short distance no bottom in one hundred and fifty. The direction of this bank was

Sept. 30. Lat. 64° 10′ N. Long. 63° 05′ W.

N.E. by N. and S.E. by S.; it seemed to be about six miles in length, but it was only one quarter of a mile broad. The tide set over it at noon on this day, N.E. by E., at the rate of one mile and a half per hour. We tried for fish on this bank, but found none. At four P.M. the land was very distinctly seen, bearing from N.N.E. to W. by S. The high mountain which was seen yesterday, bearing W.S.W. bore now W.N.W.; a head land, having the appearance of a cape, bore, at sun-set, W. by S. The latitude by the pole-star was determined to be 63° 40′ N. When this cape bore west, and by altitude of Arcturus, its longitude by chronometers was found to be 65° west: it was named Cape Enderby; and some small islands, which were seen to the southward, were named Swedish Islands; and the southermost of these, Charles's Island.

The land here trended to the westward, appearing to form an inlet, and land, on the opposite side of it was seen, bearing south; after dark the course was altered to south; it was blowing fresh, and, having run ten leagues, which brought us off the last land we had distinctly seen, we hauled to the wind, on the larboard tack, under close-reefed topsails. At nine P.M., we had cloudy weather and strong breezes. We found, by our reckoning, that the current had set us twenty-five miles to the N.E. during the last twenty-four hours.

Oct. 1. We stood off and on till day-light, when we made all sail for the land; at seven we made an island, which appeared to be at the distance of eight leagues from the land which was seen to the westward of it. About noon it became

very clear, the land we passed last night was distinctly seen, and its bearings taken; at the same time the island bore due west, and its latitude answered to Earl of Warwick's Foreland; between the land seen to the westward of this, and that seen to the north, there was no land, and we had no doubt but that this was Cumberland Strait. As we approached the entrance of this, we found a strong tide, which, during the day, set round the compass, or in every direction. Several small islands were also seen to the north and south of the great entrance, which appeared to be between thirty and forty miles wide. The land was also seen bearing S ½ W. In the morning the tide was observed to carry the ship to the westward, and, after noon, to the S.E., at the rate of two miles an hour. As the first of October was the latest period, which, by my Instructions, I was allowed to continue on this service, I was not authorized to proceed up this Strait to explore it, which, perhaps, at the advanced season of the year, might be too hazardous an attempt; the nights being now long, and the little day-light we had being generally obscured by fogs or snow, and the rigging of the ship covered with ice. I thought it, however, advisable, to finish our operations for this season, by making Resolution Island, the exact situation of which had been laid down by Mr. Wales; I, therefore, determined on steering for the southernmost land in sight; we, therefore, crossed the entrance of Cumberland Strait, and, making an allowance for indraft, steered about S.S.E. It will appear that, in tracing the land from Cape Wal-

Oct. 1.
Lat. 62° 51¼′ N.
Long. 61° 12¼′ W.

Oct. 2. Lat. 62° 004′ N. Long. 62° 25′ W. Var. 56° 00′ W.

singham, no doubt could be entertained of its continuity until the place where we found Cumberland Strait, which is much further south than it was laid down from the latest authorities the Admiralty were in possession of; but it is very near the place where Davis placed it in his chart, which has been found since our return. From the circumstance of a current being found at the entrance of this Strait, there is no doubt a much better chance of a passage there than in any other place; and it was a subject of much regret to us, that we had not been able to reach its entrance sooner.

Oct. 2. Having run a sufficient distance to bring us abreast of the land we saw last night, we hove to at one o'clock, with the ship's head to the northward; and, at four, we wore and hove to with the ship's head to the southward, the wind being from the westward. At day-light we made sail for the land, and made Resolution Island at nine o'clock: it bore about S.W., distance eighteen leagues. Before noon it fell calm, and became foggy. We sounded in six hundred and fifty fathoms, and obtained from the bottom several small shells and stones: we discovered that the tide, at different periods, set in various directions, but strongest to the S.E. and N.W. At eight o'clock a light breeze sprung up from the westward; we ran fifteen miles to the southward, and hove to.

Oct. 3. It was my intention to have taken a better view of Resolution Island, in order to prove the accuracy of our longitude; but the weather being foggy, and the wind light and variable, I was obliged to abandon the attempt as

too hazardous under the existing circumstances, *viz.*, thick weather, bad-sailing ships, a dark moon, spring-tides, a coast surrounded with rocks, and the time I was directed to leave the service on which I was employed being arrived; our bearings of yesterday were, however, sufficient to convince us, that our observations and chronometers could not be materially wrong. During the last night, which was both dark and foggy, the Alexander had separated from us considerably, and the wind being light she did not join us until noon. We then bore up for Cape Farewell, having intimated, by signal, that it was my intention to make that Cape on our passage home; we sounded in three hundred and seventy fathoms, Cape Best on Resolution Island bearing west, distance sixteen leagues, by our reckoning; in the evening a light breeze sprung up from the westward and we pursued our course.

Oct. 3. Lat. 61° 41′ N. Long. 62° 16′ W.

Oct. 4. We had good observations for latitude, longitude, and variation, and found the latter considerably decreased; we sounded at noon, but found no ground in nine hundred and fifty fathoms; at the same time the self-registering thermometer was sent down, and the temperature of the sea at that depth, was found to be 35¾°, while at the surface it was at 41°, and the air at 37°. Before sun-set I altered the course to S. by E., in order to get sooner into the parallel of Cape Farewell. During the night we had snow, and fresh breezes from the W.N.W. On the morning of the 6th it blew a gale, which brought us under the close reefs; the sea rose so suddenly that before the dead lights in the cabin were secured, two

Oct. 8.
Lat. 59° 00¾′ N.
Long. 51° 23½′ W.
Var. 46° 00′ W.

of the windows were broken to pieces; at four o'clock the wind shifted to the northward, and gradually decreased. We continued our course during the seventh and eighth, and on that morning about eight we were on the spot we had been at on the 27th of May, when outward bound. About noon the bowsprit was discovered to be sprung, and, the wind increasing, no time was lost in getting in the flying jib-boom: we also sent down the fore-top gallant mast and yard, to ease the bowsprit, and the runner and tackles were fixed as a temporary security for the fore-mast; we suppose that this damage was the effect of the late gale. The day was employed in fishing it with two spare oak tillers which, being crooked, saved the necessity of taking out the chock between the knight-heads; a good job was made of this, but it was not completely finished before night. On the morning of the 9th we had a heavy gale; the top-gallant yards and masts were sent down, but we were enabled to continue our course until half-past eleven, when we were obliged to take in the fore and main-top sails, and to scud under the foresail. We were, at noon, eighteen miles south of Cape Farewell, as laid down by Captain Upton *; but the weather was so tempestuous we could not see above four or five miles for the foam and drift on the sea. About 1ʰ 30ᵐ the sea running very high, the Alexander was observed to broach to, and being unable to scud any longer, she continued to lie to; our bowsprit being not sufficiently secured, I was under

* Cape Farewell is in lat. 59° 45′ N., and long. 47° 56′ by Capt. Upton.

the necessity of keeping before the wind as long as possible, but before sun-set a double belly-stay was fitted and set up, and the fishes of the bowsprit secured. About six o'clock one of the quarter boats was washed overboard, which had been turned bottom up, and hoisted as high as possible for security; and, soon after, the dog I had purchased at Prince Regent's Bay was also lost. About eight o'clock the foresail gave way, and the ship could no longer be steered; we then brought to under the trysail. Soon after this the starboard quarter boat was washed away; and, during the night, much water was shipped, and the boarding of the bulwark was washed away by the sea, which made sometimes a breach over the ship, but no other damage was sustained. Fortunately we met with no ice, but in the morning several large icebergs were seen.

Oct. 12. Lat. 59° 17½′ N. Long. 38° 46½′ W.

About four, A.M., on the 10th, the gale began to abate, and, at noon, we were able to carry the close-reefed topsails, which were immediately set. The Alexander not being in sight we steered to the northward, being the most probable direction for finding her.

On the 12th the weather was fine and calm, we sounded, but had no ground in one thousand fathoms. We sounded again, on the 14th, with no better success. Nothing remarkable happened on our passage to Shetland. Our observations on the latitude, longitude, and variation, as well as those on the aurora borealis, will be found in the Appendix. We had, in general, moderate weather, but often snow and fogs. Specimens of various birds were shot and preserved, and will be

Oct. 29. Lat. 60° 58½′ N. Long. 27° 02′ W.

found described in the Appendix. The fulmar peterels were our constant attendants until we made Ferroe Islands, where they left us. We made the largest island near the centre. Nothing was seen on our passage but one iceberg, which was discovered, on the 17th, about midway between Cape Farewell and Shetland. On the 25th of October we made the Islands of Ferroe; and, on the 26th, were close to the Saddeloe, and found our chronometers agreed with its longitude. We had afterwards thick weather, and could only discern the tops of the mountains.

On the 30th of October we made the island of Fula, and, passing between Fair Isle and Sumburg Head, arrived at Shetland, and anchored in Brassa Sound, after an absence of exactly six months. We found the Alexander here, she had anchored only a few hours before, all well. The Lerwick packet being about to sail for Leith, I sent a short account of my proceedings to the Secretary of the Admiralty, for the information of their Lordships; and which, after recommending the officers and men of both ships, for their meritorious conduct, I concluded in the following words:—"Not an instance of punish-" ment has taken place in this ship, nor has there been an " officer, or man, in the sick list; and it is with a feeling " not to be expressed, that I have to conclude this letter, by " reporting that the service has been performed, and the " expedition, I had the honour to command, has returned, " without the loss of a man.

" I have, *&c.*,

J. Ross.

CHAPTER XIII.

PROCEEDINGS OF THE SHIPS AT SHETLAND—SAIL FROM THENCE, AND ARRIVE AT HULL—GENERAL ORDERS TO THE OFFICERS, AND VARIOUS REGULATIONS—ARRIVAL IN THE THAMES—AND CONCLUSION OF THE VOYAGE.

WE had no sooner anchored in Brassa Sound, than our friend, Mr. Mouat, came on board, to welcome our return, and to offer us the accommodation in his house, by which we had been so much benefited on our former visit, and we were thereby afforded an opportunity of concluding our scientific operations. The dipping needle was accordingly landed, and observations were made, which proved that no alteration had taken place in that valuable instrument. Altitudes of the sun were taken for time by the artificial horizon; and the meridian altitudes for latitude were also taken, both on board and on shore; and the longitude by chronometer was found, for the purpose of determining, by the known longitude of Shetland, the errors of the watches. The variation of the compass was also accurately observed, and the results of all these operations will be found in the Appendix. I also made experiments on board both ships, to determine the points of

change, and the amount of the deviation in this harbour, for the purpose of comparison with those made in Baffin's Bay; and these observations, which are at full length in Appendix No. I., will be found of much importance:

In the mean time our water was replenished, our cables and anchors arranged, our crews refreshed, and every preparation made for our voyage to the Thames; and the wind coming fair, we sailed from Brassa Sound on the morning of the 7th of November, having previously sent a sealed letter to Lieutenant Parry, with directions to open it in latitude 58° North. The purport of this letter was, according to the tenor of my Instructions, to require him, the officers, petty officers, or others, on board the Alexander, to seal up, and deliver to me, on the ship's arrival in England, all logs, journals, charts, and other memoranda, for the purpose of being delivered to the Admiralty, and held at their Lordships' disposal*.

We had a fair wind, which carried us off Flamborough Head, where we met with a strong breeze of N.E. wind; and, after beating for several days, we anchored in Grimsby Roads, on the 14th of November. The logs, journals, charts, and other memoranda, being sealed, and collected from the officers of both ships, I set off for London, where I arrived on the 16th, and delivered them, with a full account of my own proceedings, to their Lordships.

The following is a Copy of the Rules and Regulations, issued

* The exact copy of the order is given in the Alexander's orders.

by me to the officers and ships' companies of the Isabella and Alexander, at the commencement of our voyage, and at a subsequent period, which were to be attended to, in addition to the "Printed Instructions" of His Majesty's Navy.

GENERAL ORDERS

To be observed by the Officers and Crew of His Majesty's Sloop *Isabella*, John Ross, Esq. Commander, in addition to the General Printed Instructions.

I.

The officers to be in three watches, *viz.* :—

1. Lieutenant Robertson and Mr. Bushnan.
2. Mr. A. M. Skene and Mr. Wilcox.
3. Mr. J. C. Ross and Mr. Lewis.

The seamen are to be in three watches, and each watch divided into two parts.

II.

The senior officer of the watch is to write in the rough log every occurrence, filling up the different columns during his watch, or as soon as possible after he is relieved; he is also to pay attention to the meteorological occurrences, and in like manner insert them in the rough journal; both the log and journal are to be kept in charge of the sentinel at the cabin door.

List of Meteorological Observations to be attended to.

1. Hour.
2. Temperature of the air.
3. Temperature of water at the surface. Or, if in deep water, the number of fathoms and temperature to be inserted in the column of remarks.
4. Specific gravity of water. N. B. A bottle is to be saved for this purpose at each watch.
5. Altitude of marine barometer.
6. Altitude of thermometer on deck.
7. Direction of the wind.
8. Weather; whether cloudy, clear, snowy, or rainy.
9. Hygrometer.
10. Soundings.
11. Rise and fall, } of the tides.
12. Velocity, }
13. Drift or direction of the tides or currents.
14. Officers' signatures.
15. The aurora borealis is to be inserted in the remarks, with observations on its effects on the magnet.

III.

The captain is to be immediately acquainted,

1. On a change of wind.
2. On the change of weather.
3. On appearance of fog, (when the helm is to be put up to join the Alexander, if at a distance to leeward, out of musket shot.)

4. On the appearance of fog clearing away.
5. On appearance of snow.
6. On the appearance of ice (sufficient to impede progress).
7. On the appearance of shoal water.
8. On sight of land.
9. When necessary to reef topsails.
10. When necessary to let out reefs.
11. On any sudden squall.

IV.

The deck is never to be left without an officer, but when the ship is taken suddenly in a squall, the sentinel is to call the captain, at the desire of the officer.

V.

The officers are required to take observations whenever an opportunity offers; they are to keep a reckoning, and to give in a day's work regularly at noon, as follows:—

Latitude by observation,
Latitude by account,
Longitude by chronometer,
Longitude by observation, ⊙—☾ or ☽—*
Longitude by account,
Course,
Variation,
Bearings,
Distance.

VI.

Three marines are to be selected, as constant sentinels to relieve each other at the door of the cabin. The sentinel for the time is to have charge of the magazine, instruments, stores in the cabin and gun-room, the rough logs and journals, half-hour glass, the light in the binnacle, and other things which may be put into his charge by the captain and officers; a board is to be hung up to remind him of the winding up of the chronometers at nine o'clock, which he is to report to Captain Sabine; and he is not to be relieved until he can report to the next sentinel that the chronometers are wound up and compared.

VII.

Serjeants Martin and Wise are to have charge of the stoves on the lower deck, the issue of fuel, the fires, and lights, which they are to report regularly to the officer of the watch, as well as any disturbances in the ship.

VIII.

Captain Sabine is to be called whenever he leaves word with the officer of the watch, or when any remarkable object is seen in the sky or water.

IX.

The course is never to be altered without the captain's knowledge or directions, except in a case of immediate danger, when the helm is to be put up or down, as may be best to avoid it.

X.

A good look-out is to be kept from the mast-head in clear weather, and the mast-head man to be relieved every hour, or as may be hereafter directed in daily orders.

XI.

The lower deck is to be cleaned under the direction of the officer of the morning watch, who is to report, when finished, to the captain; the men are to be sent on deck, and the 'tween decks aired and dried by stoves.

XII.

The surgeon and assistant-surgeon are to pay particular attention to the temperature of the lower deck, and any thing else which may be conducive to the health of the crew; the latter is to visit the coppers, as is usual in the naval service.

It is expected they will pay great attention to natural history; and a report will be required of the anatomy of the various subjects of natural history which may be met with on the voyage.

XIII.

No expenditure of any article is to be made, but what is regularly reported to the captain and purser, and inserted in the log.

XIV.

The bearing and distance of the Alexander is to be inserted at the end of every watch in the log book; and, if lost sight of, the time and bearings when last seen, are to be inserted, as also the time and bearings when she is next seen, and every necessary step to be taken to join her if out of musket-shot.

XV.

All signals, whether general or telegraphic, are to be inserted in the log; the time when made, the number, and purport.

XVI.

The officers are required to take sketches of the land, and of different objects which may appear in their watches.

XVII.

All objects of natural history, geology, and mineralogy, are (if possible) to be brought carefully on board; and if any cannot be removed on account of their size, sketches and drawings are to be taken of them.

To Lieut. W. ROBERTSON,
Messrs. A. M. SKENE.
J. C. Ross.
JOHN EDWARDS.
C. J. BEVERLY.

ADDITIONAL ORDERS.

At Sea.

"It is my direction, that the officers of His Majesty's Ship Isabella do transmit to me the accompanying Monthly Report of Observations, filled up, for the information of my Lords Commissioners of the Admiralty.

"JOHN ROSS, Captain.

"*May* 31, 1818."

GENERAL ORDER.

"It is my direction, that every specimen of the animal, vegetable, and mineral kingdoms, which may be found or procured by any person employed in the ships under my command and orders, shall immediately be brought to me, that I may give such directions respecting their disposal as I may think fit; and all officers going on any service to the shore, or ice, or having communication with the natives, are to use their utmost endeavours to collect and procure every thing which may contribute to the advancement of natural knowledge; and of the larger animals, and other objects which cannot be removed, sketches and descriptions are to be taken; and all such reports, descriptions, *&c.*, are to be signed by the officer, and sent to me for His Majesty's service.

"Given on board His Majesty's Ship Isabella, at Sea, this 17th day of August, 1818.

"JOHN ROSS, Captain."

General Memorandum.

"Pursuant to orders from my Lords Commissioners of the Admiralty, *&c. &c. &c.*

"You are hereby required and directed to deliver to me, the moment the ship anchors on England, all the charts, logs, journals, and memoranda, both of a public and private nature, which you may have kept during the time you have been on board the ship under my command, which are to be sealed up, and kept at the disposal of their Lordships; and you are to sign an acknowledgment, according to the form annexed, for the satisfaction of their Lordships.

"Given on board the Isabella, this 9th day of November, 1818.

"John Ross, Captain.

"*To* Wm. Robertson, First Lieutenant.
Edw. Sabine, Captain R. A.
John Edwards, Surgeon.
A. M. Skene, J. C. Ross, } Admiralty Midshipmen.
J. C. Beverly, Assistant-Surgeon,
And all persons on board the Isabella, who may have kept any of the abovementioned documents."

Form.

" We, the undersigned, do hereby certify, that we have delivered (sealed up) all the logs, journals, and memoranda, we have kept on board the Isabella, between the 1st of May and date hereof, for the purpose of being delivered to the Lords Commissioners of the Admiralty."

ORDERS TO THE ALEXANDER.

" *By John Ross, Esq, Captain of His Majesty's Sloop Isabella, and Senior Officer,* &c. &c. &c.

" Pursuant to directions from my Lords Commissioners of the Admiralty,

" You are hereby required and directed to put yourself under my orders, and follow all such instructions as you may from time to time receive from me.

" Given, *&c.*, this 13th day of April, 1818."

" *Isabella, Nore, April* 16, 1818.

MEMORANDUM.

" Commissioner Sir R. Barlow having acquainted me, that only one Advance List had been transmitted from the Alexander to the Pay-Office at Chatham,

" It is my direction, that you prepare two others, to be in readiness by the time the Commissioner may go on board the Alexander, for the purpose of comptrolling the payment of her advance."

" *To Lieutenant Parry.*"

" *By John Ross, Esq., K. S., Captain of His Majesty's Sloop Isabella*, &c. &c. &c.

" Mr. M. Levy, of London, having forwarded a quantity of warm slop clothing to Sheerness, for the purpose of supplying the seamen of His Majesty's sloops Isabella and Alexander,

" It is my direction, that you cause each of the seamen to procure warm clothing, equal in quality, and at the prices of those furnished agreeably to sample, on board the ship you command.

One Flushing monkey jacket		£0	10	9
One pea jacket		0	14	6
Two pair of Flushing trowsers	5*s.* 9*d.*	0	11	6
Two red shirts	3*s.* 8*d.*	0	7	4
Two pair swanskin drawers	4*s.* 0*d.*	0	8	0
Two pair wadmill hose	2*s.* 4*d.*	0	4	8
Two pair ancle shoes	8*s.* 0*d.*	0	16	0
Scarlet and fawn cap	2*s.* 11*d.*	0	2	11
Carried forward		£3	15	8

	Brought up	£3	15	8
Two pair mitts	10*d.*	0	1	8
One pair sea boots	21*s.*	1	1	0
One comfortable		0	1	8
		£5	0	0

" Given, *&c.*, the 20th April, 1818."

" *To Lieut. W. E. Parry*, &c. *Alexander.*"

" *Isabella, Brassa Sound, Lerwick,*
" *April 30th*, 1818.

MEMORANDUM.

" It is my direction, that no petty officer, seaman, or marine, are to be sent on shore, on duty, or leave, during the time the ships are at Shetland.

(Signed) " JOHN ROSS."

" *By John Ross, Esq., K. S. Captain of His Majesty's Sloop Isabella, and Senior Officer*, &c., &c., &c.

" His Royal Highness the Prince Regent having signified his pleasure, that an attempt should be made to find a passage, by sea, between the Atlantic and Pacific Oceans: And whereas the Lords Commissioners of the Admiralty have appointed me to the chief command, requiring me to take His Majesty's brig, under your command, under my orders;

and, being furnished with Instructions to try to find a passage, by way of Davis' Strait, *&c.*, you are hereby required and directed, to pay strict attention to the following orders for your further proceedings.

I.

The Alexander's station on the weather quarter two cables length distant.

II.

In event of a fog, the ship to leeward will heave to, and fire guns, or musquets, according to the distance, until taken in tow, or within sight or hail.

III.

In case of unavoidably parting company, to proceed to Love Bay, in the Island of Disco, and wait the arrival of the Isabella.

IV.

To take every opportunity of making astronomical and meteorological observations on the passage; a copy of which to be transmitted to me by every opportunity, after a week's interval.

V.

Lieutenant Hoppner to be employed, when an opportunity offers, in taking views of any land which may be seen, and in making drawings of any subjects of natural history which may be met with on the voyage: these to be regularly transmitted to me, with his name affixed to them.

VI.

A good look out to be kept, and signals made when any thing remarkable is seen.

VII.

When sent to look out, always to return at dusk, or on thick weather coming on, without signal; unless ordered otherwise by signal, or special orders.

VIII.

Crews to be victualled at full allowance, and no increase or decrease to be made without my special orders.

IX.

A report to be given in weekly, or as soon after as convenient, of provision and fuel.

X.

No boats to be sent on any service or excursion, without permission, except for the immediate safety of the ship.

XI.

The bearings of the Isabella to be inserted in the log at the end of every watch; and, if lost sight of, the time when lost, and time of re-appearance; and it being my intention, should the sea be found open, to sail direct up the Straits to the northward, it is requested you will particularly call the attention of your officers and crew to keeping company with

the Isabella, on which materially depends the safety of both ships; and should any accident happen, or occurrence take place, which may oblige the Alexander to shorten sail, the attention of the Isabella is to be called by firing guns; or, if dark, by a blue light, and every precaution taken to avoid separation.

"Given under my hand, on board the said Sloop, at Shetland, this 1st day of May, 1818.

(Signed) "JOHN Ross, Capt.

"*To Lieut. W. E. Parry, Commander of His Majesty's Sloop Alexander.*"

"*His Majesty's Ship Isabella, Lerwick, May* 3, 1818.

"SIR,

"Herewith you will receive orders and instructions for your further proceedings; also fifty printed papers, one of which, after having filled up the blanks, is to be put into a bottle, carefully sealed up, and thrown overboard, at noon, every day, after passing latitude 65° N., provided the Isabella is not in company; the receipt of these you will be pleased to acknowledge.

"I am, Sir, *&c.*

"*To Lieut. W. E. Parry.*"

"*His Majesty's Ship Isabella, May* 19, 1818.

"SIR,

"It is my intention to pass up Davis' Strait in the

following track, in Admiralty Chart, No. 4, Coast of Labrador and Greenland.

No. 1. to pass latitude 58° N. in 46° W. longitude.
2. „ „ 59° „ 52° „ „
3. „ „ 60° „ 54° „ „
4. „ „ 61° „ 56° „ „
5. „ „ 62° „ 57° „ „
6. Take a north course until latitude 67° north.
7. Then steer for Rifle Bay, in Love Bay, in Disco.

" It is my direction, that in event of parting company, you will follow, as nearly as convenient for ice and winds, the above track; in order that we may be the more likely to fall in with each other, and prevent the necessity of putting into port.

" I am, Sir,

" Your obedient humble Servant,

(Signed) " JOHN ROSS.

" *To Lieutenant W. E. Parry.*

" MEMORANDUM.

" *Isabella, at Sea, July* 20, 1818.

" In order to obtain the advantage and use of the Acadian code of signals, it is my directions, that the pendants, denominated

in the table of flags in the general signal book, 'distinguishing pendants,' when hoisted *superior*, shall relate to the Acadian code, and express the horizontal, or up line of figures, in the vocabulary. The vertical line being expressed *inferior* by the square flags from one to nine, the ciphers, substitutes, *&c.*, being used as they stand in the signal book, and the half white and red pendant to be used as in the example.

(Signed) "JOHN Ross, Captain.

"*To Lieutenant Parry, Alexander.*

"It is my direction, that the officers of the respective watches in the Alexander do pay particular attention to the log courses, signals, and meteorological observations; and that each column in the rough log-book shall be filled up by the officer who actually kept the watch at the time the observations were made, or as soon as possible after he is relieved; and his initials are to be at the same time entered in the proper column opposite the end of his watch.

"Given under my hand, on board the Isabella, at Sea, August 21, 1818.

(Signed) "JOHN Ross, Captain."

"MEMORANDUM.

"It is my directions, that an order to the above effect shall be written in the beginning, and referred to in the next page

of the Alexander's log-book; and that you will cause the officer having the forenoon watch, to bring you the log for your inspection.

"Given, &c., August 21, 1818.

(Signed) "JOHN Ross, Captain.

"*To Lieutenant Parry.*"

"GENERAL."

"It is my direction, that every specimen of the animal, vegetable, and mineral kingdoms, which may be found, or procured, by any person employed in the ships under my command and orders, shall immediately be brought to me, that I may give such directions respecting their disposal as I may think fit; and all officers going on any service to the shore, or ice, or having communication with the natives, are to use their utmost endeavours to collect and procure every thing which may contribute to the advancement of natural knowledge. And of the larger animals, which cannot be removed, sketches and descriptions are to be taken; and all such reports, descriptions, &c., are to be signed by the officer, and sent to me for His Majesty's service.

"Given on board His Majesty's Ship Isabella, the 17th day of August, 1818.

(Signed) "JOHN Ross, Captain.

"*To Lieutenant Parry, His Majesty's Ship Alexander.*"

" *By John Ross, Esq., Commander of His Majesty's Sloop Isabella, and Senior Officer*, &c. &c. &c.

" Whereas the issuing of preserved meat and soups may be very conducive to the preservation of the health of the ships' crews,

" You are hereby directed, to cause the purser of the sloop you command, to issue a proportion of one pound of preserved meat, and one pound of vegetable soup per man, a week; the former in lieu of salt beef and pork, the latter in addition to the established allowance. In regard to the issue and expenditure of preserved meats, *&c.*, you are to be guided by the instructions furnished by the Commissioners for Victualling His Majesty's Navy; and for so doing this shall be your *order*.

" Given under my hand on board the Isabella, at Sea, this 2d day of September, 1818.

(Signed) " JOHN Ross, Captain.

" *To Lieutenant Parry, Alexander.*"

" *By John Ross, Esq., Captain of His Majesty's Sloop Isabella, and Senior Officer in the Arctic Seas*, &c. &c. &c.

" In pursuance of directions from my Lords Commissioners of the Admiralty, bearing date April 16, 1818,

" You are hereby required and directed, to cause one set

of the additional warm slop clothing to be issued, gratis, to each of the seamen and marines serving on board the sloop you command; and that any further surplus should be charged, subject to their Lordships' future consideration.

"Yours, *&c.*,

"JOHN ROSS, Captain.

"*Sept.* 21, 1818.

"*To Lieutenant Parry,*" &c.

"Not to be opened until passed to the South of latitude 58° North.

"*By John Ross, Esq., Captain of His Majesty's Ship Isabella, and Senior Officer of His Majesty's Ships,* &c. &c. &c.

"Pursuant to orders from my Lords Commissioners of the Admiralty, *&c.*,

"You are hereby required and directed to deliver to me, all the charts, logs, journals, and memoranda, you may have kept, from the 3d of May to the date hereof, which are to be sealed up, and kept at the disposal of their Lordships; and you are to sign the accompanying acknowledgment for the information of their Lordships.

"Given under my hand, on board the Isabella,

at Lerwick, this 1st day of November, 1818.

" *To* W. E. PARRY, Lieutenant and Commander.
H. H. HOPPNER, Lieutenant.
W. H. HOOPER, Purser.
R. BISSON, } Admiralty Midshipmen.
JOHN NIUS, }
ALEX. FISHER, Assistant Surgeon,

And all others who have kept documents of the above description.

" We, the undersigned, do hereby certify, that we have delivered, sealed up, all the logs, journals, and memoranda, we have kept on board the Isabella, or Alexander, between the 1st of May and date hereof, for the purpose of being delivered to the Lords Commissioners of the Admiralty."

" *By John Ross, Esq., Captain, &c.*

" You are hereby required and directed, to proceed (as soon as wind and weather permit,) without loss of time, to Galleons, in the River Thames, taking from hence a pilot for the Nore; and you are to report your arrival there, or any intermediate port you may put into, to the Secretary of the Admiralty.

" Given under my hand, on board the Isabella, Humber, this 14th day of November, 1818.

(Signed) " J. Ross, Captain."

" *To W. E. Parry, Lieut. and Commander of His Majesty's Ship Alexander.*"

" *To Lieut. Robertson, (b) First Lieutenant H. M. S. Isabella, and Commanding Officer.*

ORDERS *to* DAVID BUCHAN, *Esq. Captain of His Majesty's Ship Dorothea, and Commander of the Polar Expedition.*

" PURSUANT to the directions of my Lords Commissioners of the Admiralty, that several places of rendezvous should be appointed, and the annexed having been agreed upon as the best; you are acquainted that His Majesty's Sloop Isabella will leave on each of the four first mentioned places (if she can approach them), several marks on the shore, white and red, twelve feet north by compass of which a bottle will be found three feet under ground, containing information; and, the Dorothea and Trent are required to do the same, should they pass before the Isabella and Alexander.

" You are also informed, that a red over a blue ensign at the fore, is the private signal at Columbia River. The Isabella is to remain at St. Peter and St. Paul, until the 15th of October, and then to be found at Owhyhee, refitting and wintering.

" Given under my hand on board the Isabella, at the Nore, 20th April, 1818.

(Signed) " J. Ross, Captain."

" *To Captain Buchan,*
His Majesty's Ship Dorothea."

RENDEZVOUS REFERRED TO.

Cape Lisburne	Lat. 69° 05′ 00″ N. Long. 165° 22′ 30″ W.
Cape Mulgrave	Lat. 67° 45′ 30″ N. Long. 165° 12′ 00″ W.
East Cape	Lat. 66° 05′ 30″ N. Long. 169° 44′ 00″ W.
Choukotchkoi Noss	Lat. 64° 14′ 30″ N. Long. 173° 31′ 00″ W.
Awatska Bay	Lat. 53° 00′ 37″ N. Long. 158° 44′ 30″ East.
Karakakooa Bay in Owhyhee	Lat. 19° 28′ 10″ N. Long. 155° 56′ 23″ W.

Lieutenants Parry and Robertson, pursuant to orders, sailed from Hull on the 16th, and arrived at Deptford on the 21st of November. I was directed by Lord Melville to signify their Lordships' approbation of the conduct of the officers and crews of the two ships; and to acquaint them, that it was probable an expedition of a similar nature would

be undertaken in the ensuing spring; and that those who were desirous of volunteering their services should have a preference over all others, should be found employment during the winter, granted a month's leave of absence, and kept in pay until the ships were ready for receiving men; upon which nearly the whole volunteered, and the Isabella and Alexander were paid off on the 17th of December.

APPENDIX.

APPENDIX, No. I.

ON

THE VARIATION OF THE COMPASS,

AND

DEVIATION OF THE MAGNETIC NEEDLE;

GIVING AN ACCOUNT OF EXPERIMENTS MADE AND FACTS ESTABLISHED, ON BOARD HIS MAJESTY'S SHIPS ISABELLA AND ALEXANDER,

ON A VOYAGE OF DISCOVERY TO THE ARCTIC REGIONS:

ALSO,

RULES FOR CORRECTING A SHIP'S COURSE FOR DEVIATION:

BY

JOHN ROSS, CAPTAIN, ROYAL NAVY.

INTRODUCTION.

THE following Article, on the Variation of the Compass and Deviation of the Magnetic Needle, is not offered as a contradiction or a confirmation to any theory which has been already adopted;—the author has all along considered himself as a collector of facts only.

The manuscript was submitted to the Board of Longitude and Royal Society, where it has been read and approved; and I am authorized by the President, Sir Joseph Banks, to say that he would have proposed its being printed in the Philosophical Transactions, had he not been informed that it was to be published in the Narrative of the Voyage; after which it was not consistent with the regulations of the Royal Society to print it.

JOHN ROSS.

ON THE

VARIATION OF THE COMPASS,

AND

DEVIATION OF THE MAGNETIC NEEDLE.

SINCE the first discovery of the attractive power and polarity of the magnet, and the consequent invention of the mariner's compass, great improvements have been made in its construction, and some very unexpected magnetical phenomena have been discovered. The compass was in use for some years, before it was known that the needle had any deviation from the true polar direction. About the middle of the sixteenth century that deviation began to be suspected; and observations made soon afterwards, proved that, in England and its vicinity, it was Easterly. This variation of the compass decreased until about the year 1658 or 1660, when the direction of the needle corresponded with the meridian, from which time it became Westerly, and increased. This variation was found to differ in all parts of the world; while it gradually varied, it became absolutely necessary, that mariners should be furnished with the means of daily ascertaining, in every situation, the quantity of error, or variation, of the compass, in

order to correct the courses to be steered, and the bearings of objects seen. In ascertaining the quantity of this variation by the well known methods, the result was, till within a few years past, generally believed to be correct; or, at least, not subject to much error. Differences in these results were at length observed by modern navigators, particularly by Mr. Wales, the astronomer, who accompanied Captain Cook in his third voyage; and these differences were from 3° to 6°, and even 10°, with the ship's head in contrary directions; and under various other circumstances, mentioned in the Introduction to Cook's Voyage, they were from 3° to 7°.

It was reserved, however, for that able and scientific navigator, the late Captain Flinders, to elucidate this interesting fact; to explain the probable, and till then the unsuspected, cause of this aberration of the needle; to draw conclusions, and to lay down a rule for correcting the error of variation, occasioned by changing the ship's head, which, under the circumstances, and within the limits of his observation and experience, were probably legitimate and correct. But the principle on which this rule is founded, will not be found applicable to every circumstance, and to all situations, and particularly where it has now been put to the test, in Baffin's Bay.

The memoir, written by Captain Flinders on this subject, is recorded in the Philosophical Transactions of the Royal Society for the year 1805; from this, it appears to have been his opinion, that the error of variation, consequent on a change in the direction of the ship's head, was produced by the combined force of terrestrial magnetism, and "ferruginous attraction" within the ship.

In the year 1812, the Lords Commissioners of the Admiralty ordered experiments to be made on board five different vessels, in the King's ports, " with a view of ascertaining the particular causes of error to " which Captain Flinders had adverted; or of obtaining some general " results from an inquiry so intimately connected, as it appeared to " be, with the improvement of navigation." These experiments, as far as they went, tended to establish the fact, and to justify the opinion of Captain Flinders. Still, however, more information was wanted respecting this subject, for the purpose of discovering a rule that would enable us to find the true quantity of error in any place, and under all circumstances.

Although the experiments above mentioned gave some insight into the causes of this variation, they were insufficient to explain them perfectly; nor is it probable that we shall soon be acquainted with them, ignorant as we are of the nature of many physical appearances of familiar occurrence. Though it would, perhaps, be possible, in the present highly improved state of navigation, for one, thoroughly versed in seamanship and nautical astronomy, to conduct a ship in safety from England to any port in the world, without the aid of the mariner's compass; yet, in cloudy tempestuous weather, or in confined waters, and surrounded by land, his doubt and anxiety could only be relieved, or confidence given to his mind, by the compass. It is, therefore, necessary, that this instrument should be rendered as unerring a guide as possible; and this can only be done by a certain universal and invariable mode of finding the *true variation*, at all times and places, and under all circumstances.

This variation of the compass being one of the important objects of the Expedition under my command, it became my duty to examine the various reports and publications on the subject, and to endeavour to ascertain how far the different systems given to the Public are correct; and the rules for correcting the deviation of the variation to be depended on. Every possible opportunity was embraced during the voyage of taking observations, and making all the necessary experiments and comparisons. These, with their results, will be detailed progressively, as they were taken in each month, as well as the steps I deemed necessary to come at the truth.

EXPERIMENTS

MADE ON BOARD HIS MAJESTY'S SHIP ISABELLA,

IN THE MONTH OF MAY, 1818.

1st Experiment on the Difference between the Compasses of the Isabella and Alexander.

THE signal was made to steer N.W. by W.; and when the Isabella was on that course, and the masts of both ships were in one, the Alexander was N.W. $\frac{1}{2}$ W.

2d Experiment.—The signal was made to steer West; and when the Isabella was on that course, the Alexander was W. by S., the masts of both ships in one.

3d Experiment.—The signal was made to steer S.W.; and when the Isabella was on that course, the Alexander was S.S.W. $\frac{1}{2}$ W., the masts of both ships in one.

And, in like manner,—

With the Head North, and Isabella North, the Alexander N. $\frac{1}{2}$ W.

Do.	N.E.,	do.	N.E.,	do.	N.E. $\frac{1}{2}$ E.
Do.	East,	do.	East,	do.	E. $\frac{1}{2}$ S.
Do.	S.E.,	do.	S.E.,	do.	S.E. $\frac{1}{2}$ S.
Do.	South,	do.	South,	do.	S. $\frac{1}{2}$ E.

And when the compasses were carried on board the Alexander, to be compared with the ship's head S.W., there was a difference of

one point between the Isabella's azimuth compass and the Alexander's. Jennings's insulated compass was exactly between them and one of the other compasses had half a point difference to the west.

The operations were repeated, but never gave the same results; so that no rule could be laid down, *at this time*, to correct the deviation.

EXPERIMENTS AND OBSERVATIONS

MADE IN THE MONTH OF JUNE, 1818.

On the 4th of June in latitude 65° 44′ N., and longitude 54° 46′ 30″ W., observations were made, as near as possible, at the four cardinal points, which gave the following results:—

	VARIATION.			
	°	′	″	
Ship's Head North, - -	60	50	15	West.
Do. South, - -	52	25	00	
Do. E.S.E., - -	48	10	00	
Do. West, - -	77	33	30	
Mean	59	44	41	
Ship's Head N. 17° E. - -	58	01	00	West.

The mean of the Alexander's observations on the 4th of June, was 56° 55′ 10″ W.; but the head West is not included, as Lieutenant Parry reported that the ship was unsteady at that point.

June 9th. The variation was observed by azimuth on the four cardinal points of the compass, the means of which gave 5° more than the true variation observed at the same time on an iceberg, which was:— - - - - - 67° 10′ 00″ West.

On board Isabella, with her head West, the variation was observed to be - - 72 10 20 West.

And, at the same time, when observed with the ship's head N. 14° E., it gave 67° 8′ West, agreeing nearly with that on the iceberg. Azimuths were then taken 20° on each side of N. 14° E., and their mean gave the same result.

June 19th. The following bearings were taken of a distant object:—

SHIP'S HEAD.	OBJECT.	SHIP'S HEAD.	OBJECT.
North - -	N. 4 — W.	E.S.E. - -	N. 13 25 W.
N. by E. -	N. 1 — E.	N. by W. -	N. 8 15 W.
N.N.E. - -	N. 1 — W.	N.N.W. -	N. 10 45 W.
N.E. by N. -	N. 4 — W.	N.W. by N. -	N. 12 00 W.
N.E. - -	N. 8 — W.	N.W. - -	N. 13 45 W.
N.E. by E. -	N. 10 30 W.	N.W. by W. -	N. 13 50 W.
E.N.E. - -	N. 11 45 W.	W.N.W. -	N. 13 15 W.
E. by N. -	N. 12 30 W.	W. by N. -	N. 12 20 W.
East - -	N. 13 30 W.	West - -	N. 10 20 W.
E. by S. -	N. 14 00 W.	W. by S. -	N. 7 50 W.

The variation at the observatory was found to be 72° 43′ W., while on board, with the ship's head N.N.W., it was observed to be - - - - - 83° 00′ West.
From which, subtracting - - 10 45 the deviation at N.N.W.

Leaves true variation, 72 15 West.

The foregoing observations and experiments, made under favourable circumstances, tend to establish several important points:—

1st. That there is a *point of change* in the deviation of the variation occasioned by the attraction in the ship.

2d. That the point of change is not the magnetic north, but *near* it, in the Isabella.

3d. That it varies in different ships, and is affected by increase or decrease of variation, by proximity to land, or to another ship.

4th. That the point of change may be found by azimuth, or by the bearing of a distant object situated near the magnetic north, or in any other direction, if that cannot be had.

RULE.

Take an azimuth, or the bearing of a very distant object by the azimuth compass, with the ship's head at different points East and West, of North, until the points of least and greatest deviation are found; the mean of these will be nearly the point of change.

EXAMPLES.

On the 19th of June an object bore N. 4° W. by compass; and the ship's head, by means of a rope fastened to the iceberg, was in succession brought to eight points of the compass, by which it was found that the point of change in deviation was N. 17° E.

1st. On the 19th of June, with the ship's head N.N.W., the variation observed on board was - - - 83° —' West.

Difference of bearings between ship's head and point of change - - -	Increasing	10 45
	True variation,	72 15 W.

2d. On the 19th of June, with ship's head N.E., the variation observed on board was - - 64 20 W.

Difference of bearings between ship's head and point of change, - -	decreasing	8 00
	True variation	72 20 W.

It seems evident, that azimuths taken on each point will have the same effect, and therefore no example is required.

It is, however, necessary to observe, that this point of change was calculated from the compasses in the binnacle, which agreed with the azimuth compasses placed *amidships, half way between the mizen-mast and capstan;* but the point of change may be altered by setting the compasses in any other position in the ship; and particularly by shifting them from midships to the side. Finding the point of change thus subject to alteration by changing the position of the compasses, and the angle of deviation itself materially affected by heat and cold, as well as by the humidity and density of the atmosphere; to obviate these difficulties, a binnacle was constructed to stand

always exactly in the spot above mentioned, and fitted with a funnel for the conveyance of heated air, that an equal degree of temperature might be preserved within it. The temperature was above the freezing point during the time all the foregoing experiments and observations were made.

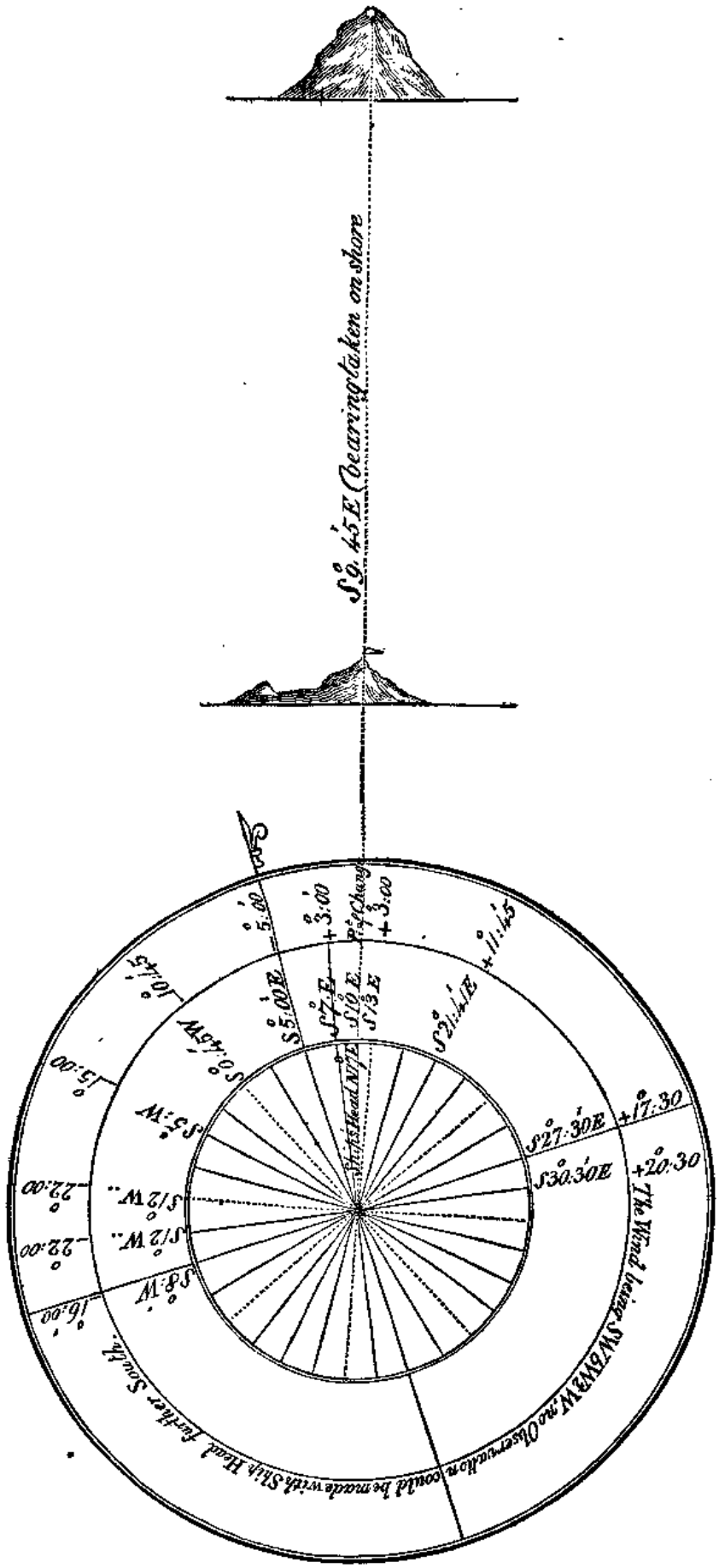
EXPERIMENTS AND OBSERVATIONS

MADE

ON BOARD H.M.S. ISABELLA, IN JULY, 1818.

A FLAG staff was erected upon the highest part of the Three Islands, in lat. 74° 1′ 15″ N. and long. 57° 45′ W.; from whence the exact bearing was taken, with Kater's compass, of a remarkable spot on a sugar-loaf mountain, nine miles distant. The ship then stood to the offing three miles, until the flag staff and spot were in one. Between the inner and middle circles of the annexed figure the transit bearings are inserted, when the ship's head was on the several points of the compass, drawn to correspond in line. For instance, with the ship's head North, the two objects in one, bore S. 5° E.; and when the ship's head was N.E. they bore S. 21° 41′ E.; and so of the rest. It is clear, that the point of change is between N. by E. and N.N.E., as represented; for when the ship's head was N. 17° E., the transit bearing of the two objects agreed with that taken on shore; and the deviation immediately increasing the variation to the west, and decreasing it to the east.

Between the middle and outer circles, will be found the degrees and minutes to be added to, or substracted from, the variation observed, with the ship's head, on any of the particular points of the compass corresponding in line, to obtain the true variation; or to obtain the true course, if steering on any of those points.


S.9.45'E (bearing taken on shore
Variation
Ship's Head N.7°E
S.7°E
S.10°E
S.13°E
S.21.45'E
+11.45
+3.00
+3.00
S.5.00E
S.0.45W
S.5°W
S.8°W
S/2°W.
S/2°W.
S/2°W.
S.27.30E
S.30.30E
+17.30
+20.30
The Wind blows SW.by W. no Observation could be made with Ship's Head further South.

These observations were made on board with Walker's, Alexander's, Jenning's, and Burt's compasses, all agreeing. But, Jenning's and Burt's did not traverse sufficiently quick to obtain all the results with them. The four compasses used were always kept in the same stations, and where they were found to agree with those in the binnacles. The compass in the centre was sufficiently raised above the other three, to make each three yards equidistant from it, and from each other; the whole four forming a solid pyramid, thus

The Alexander made the same observations. Her point of change, however, was to the Westward of North, and her deviation rather exceeded the Isabella's; but her compasses having been shifted during the operation, no conclusion could be drawn, but that the deviation existed to a great degree, though in what various proportions was not ascertained.

I was desirous to determine whether the quantity of iron on board the Isabella was the cause of this extraordinary deviation; and how far my conclusions were applicable to the ships employed in the Davis' Strait Fishery. For this purpose, I went on board the Harmony of Hull, M'Bride, master, the senior in the trade. I took with me, two of the compasses I had observed with, and found them exactly agree with those in the Harmony's binnacles. Having gone through the same observations on board the Harmony, I found her deviation to be full two points each way; or, 45° difference between the bearings of the objects when the ship's head was W. by N. and E.N.E., on which points her extremes were found. The wind was S. by W. true,

but when the ship's head was to the Westward, she laid up only W. by N., the wind *appearing* to be S.W. by S.; and with her head to the Eastward, she lay E. by S., the wind then *appearing* to be S. by E. Every surrounding object, such as ice-bergs, *&c.*, altered their bearings in the same proportion.

Mr. M'Bride, who gave me every assistance in his power, by placing his ship on every point I desired, told me, that during twenty voyages he had made to this part of the world, the wind *appeared* to him often to shift when the ship was in stays; and, frequently, he supposed it to be the effect of current when the ship did not fetch so far to windward as he expected. It was, however, the general opinion and belief, that compasses lost their magnetic virtue in Davis' Strait; and, therefore, the whalers seldom look at them, but go by the land, and through channels in the ice.

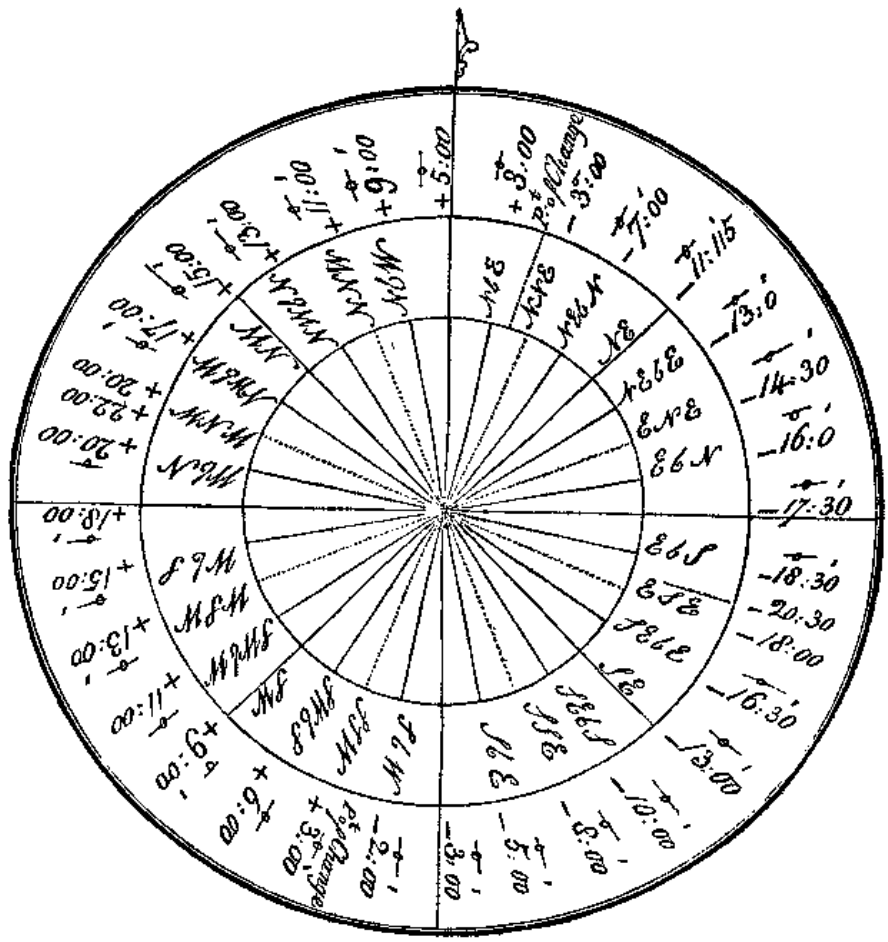
DIAGRAM, No. 1.

SHEWING THE DEVIATION OF H.M.S. ISABELLA,

OBTAINED BY

ACTUAL OBSERVATION ON EVERY POINT OF THE COMPASS,

IN BAFFIN'S BAY.

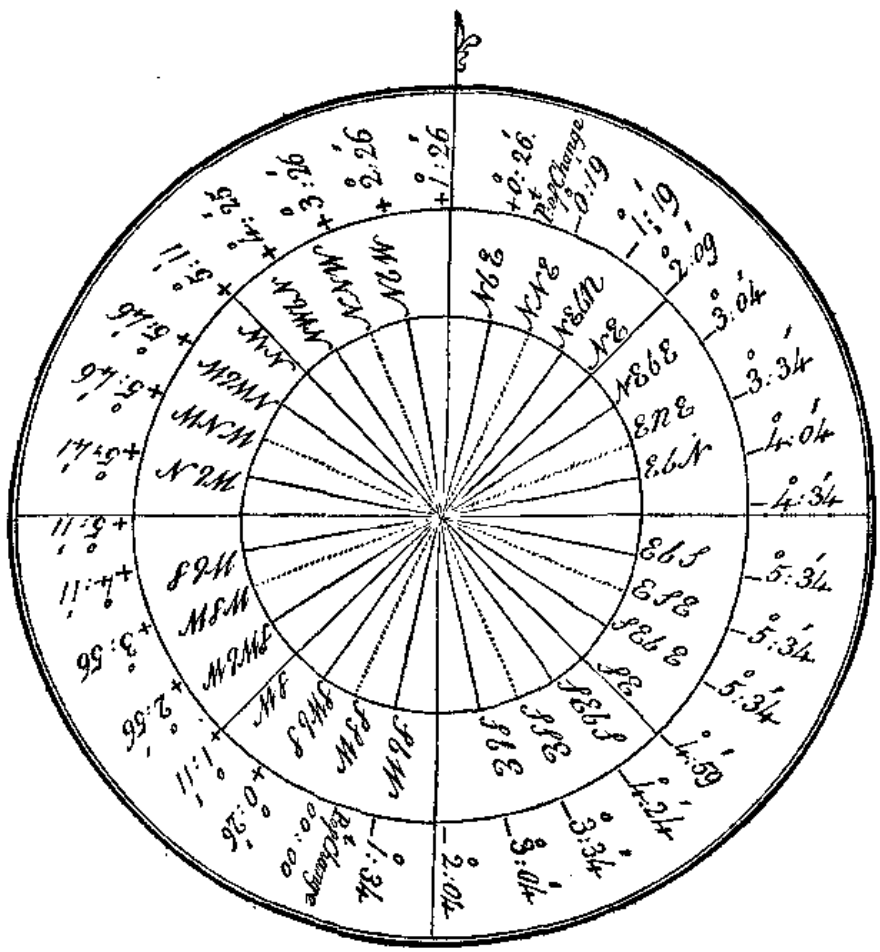


DIAGRAM, No. 2,

SHEWING THE ISABELLA'S DEVIATION AT SHETLAND,

OBTAINED BY

ACTUAL OBSERVATION ON EVERY POINT OF THE COMPASS.



ISABELLA'S DEVIATION.

The Isabella's deviation was obtained during the time she was impeded by ice, between the latitude 75° and 76° N., and when the variation was between 86° and 96° W., by various and repeated observations made on the ice, and on board the ship with her head on every point of the compass; and no alteration in its amount was perceptible between the latitudes of 71° and 76° N., although the variation had increased from 75° to 110° W. But it was found to be considerably increased by humidity in the atmosphere; and frequently, no compass in the ship was of any use but Alexander's of Leith, the card of which was suspended in a superior manner for diminishing the friction. Being, also, lighter and smaller, and the needle powerfully magnetized, it traversed when all others had ceased to act; but, on the 31st of August, the weather became rainy and boisterous, and the ship having considerable motion, this compass also ceased to act. The ship was at that time in lat. 74° 30′ N., and long. 81° W., and for a short time, our course out of Lancaster Sound, which we had examined that day, was regulated by firing musquets to the Alexander. The rain, however, soon ceasing, the compasses again traversed. The variation on that day was ascertained to be 115° West, by a transit bearing of Capes Fanshawe and Byam Martin, taken when to the *westward* of them. The ship's head being on the point of change, they bore N. 53° E. from each other, or S. 53° W. from the ship. The weather being at that moment pretty clear, and subsequently when the ship was to the *eastward* of these Capes, they were found

to bear from each other S. 46° W., and from the ship N. 46° E. The variation that day was observed in Possession Bay (which lies between them) to be 109° W., and the *true* bearing of the Capes N. 62° W.

On the 11th of September, in lat. 70° 35′ N., and long. 76° 55′ W., when the variation was observed to be 75° W., and the dip 84° 39′ 21″, the deviation had not decreased in the Isabella, nor was the decrease very perceptible till we had passed the 66th degree of north latitude. But, although the exact amount of deviation was not ascertained, yet the bearings of the land were always found correctly, by placing the ship's head on the northern or southern points of change. The deviation was sometimes found to be more or less, according to the state of the weather when the ship's course was resumed, and the bearings of the same objects were taken.

The Diagram, No. 2, seems to prove clearly, that the points of change in deviation do not alter, unless some material alteration is made in the stowage of the metallic substances in the ship, as they continued the same in the Isabella for five months; whilst the variation had altered from 27° to 115° W.; the deviation itself differing only in amount, which, however, bears a proportion, though not a regular one, with the increase and decrease of the variation and dip. Nevertheless, it may, by actual observations of the most simple nature, be obtained sufficiently near the truth for the purposes of navigation.

DIAGRAM, No. 3,

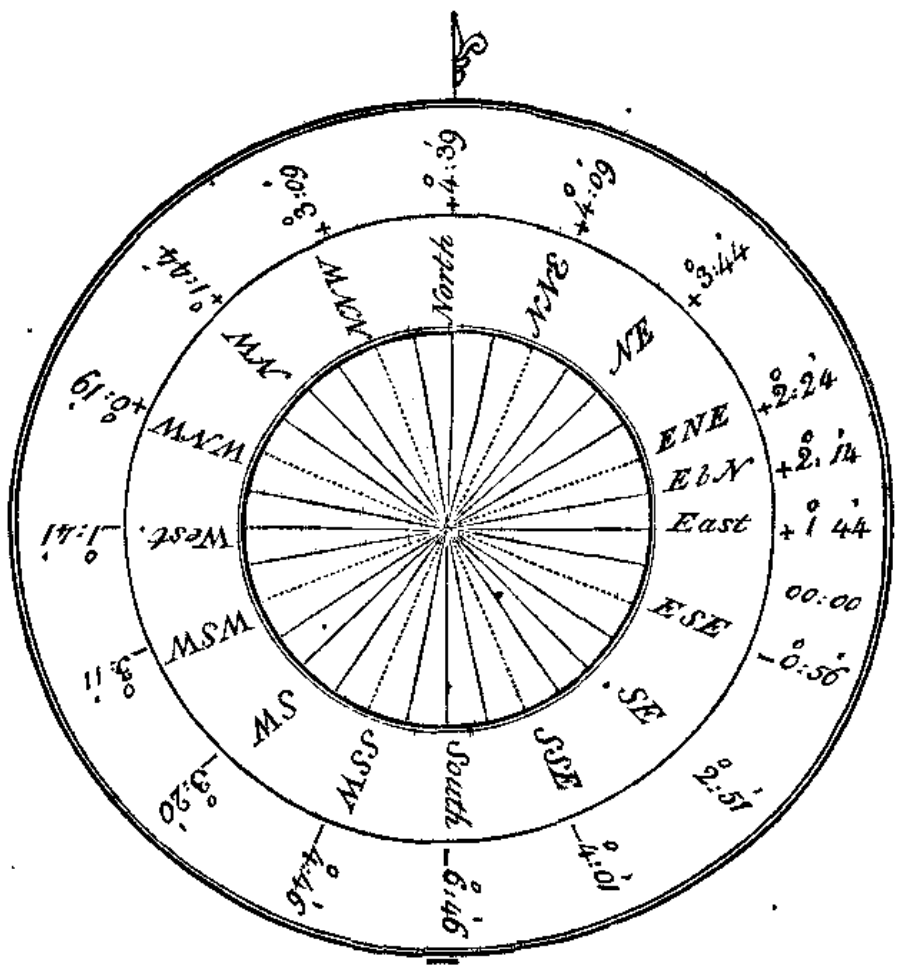
Shews the DEVIATION of the ALEXANDER on the 27th of JULY,

In Lat. 75° 30′ *N., and Long.* 60° 30′ *W.*

OBTAINED BY ACTUAL OBSERVATION, ON BOARD, OF A DISTANT OBJECT,

AND

COMPARED WITH ITS BEARING TAKEN ON THE ICE.

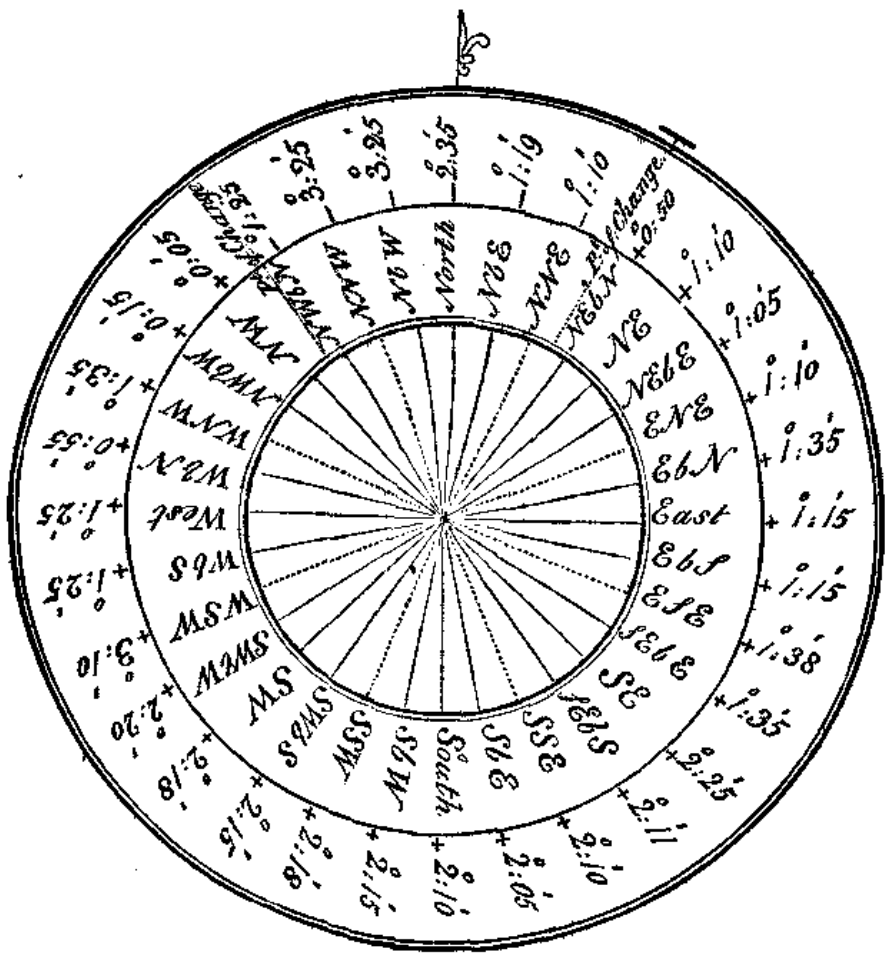


DIAGRAM, No. 4,

SHEWING

THE DEVIATION OF THE ALEXANDER AT LERWICK,

OBTAINED BY ACTUAL OBSERVATION OF A STATION POINT, ON EVERY POINT OF THE COMPASS, COMPARED WITH ITS BEARINGS TAKEN FROM THE SHIP WITH A KATER'S COMPASS.



ALEXANDER'S DEVIATION.

The Diagram, No. 3, contains the result of experiments made by me on board the Alexander, on the 27th of July, 1818, in lat. 75° 30′ N. and long. 60° 30′ W., to shew the difference between them and those I afterwards made in the same ship, on her arrival at Shetland. Soon after we had forced the last barrier of ice, on the 16th of August, it was found that the Alexander sailed much worse than the Isabella, and it therefore became necessary to trim her. Iron casks, and other metallic substances, were removed from the quarter deck, and, in consequence, her points of change were altered. The weather being subsequently unfavourable, and the season advancing, I had neither time nor opportunity to make further experiments on board her. All the bearings, therefore, taken from the Alexander, of the Coast, after that time, are of course of no value. But the amount of deviation, as well as the points of change, altered in an extraordinary manner.

By the subjoined official Report, made to me by Lieut. Parry, it appears, that on the 28th of August, in the most interesting part of the voyage, the Alexander's deviation was actually greater than that of the Isabella, on some points; but, we had no opportunity of determining either the direction, or amount, until our arrival at Shetland; where, having examined part of the log of the Alexander, I found that where three or more bearings of headlands had been taken, they could not be made to intersect. But the charts on board the Alexander will shew how much the ablest navigator may be led into error in their construction, when the points of change, and the amount of deviation, have not been obtained, and where the variation is considerable.

His Majesty's Ship Alexander, at Sea,
September 1st, 1818.

SIR,

I HAVE the honour to state to you, that the officers who have charge of the respective watches on board the Alexander, having, on the 27th and 28th ult., reported to me, that they had remarked a very perceptible inaccuracy in the compasses, by the ship's lying repeatedly within eight and a half, eight, and even seven points, on both tacks; I took particular notice, on several occasions, of the direction of her head by the compasses, before and after tacking, and found their report to have been correct. I select the following instances :—

Aug. 27th.	8.30 A.M.,	on the larboard tack,	W.b.S.	10 points (in original *).
	,,	starboard do.	S.S.E.	
	5.30 P.M.,	larboard do.	W.N.W.	7 points.
	,,	starboard do.	S.W.b.S.	
	about 9 P.M.,	starboard do.	S.W.	8 points.
	,,	larboard do.	N.W.	
Aug. 28th.	3 A.M.,	starboard do.	S.S.W.	8 points, (much swell)
	,,	larboard do.	W.N.W.	
	6.30 P.M.,	larboard do.	N.W. b W. $\frac{1}{2}$ W.	$8\frac{1}{2}$ points.
	,,	starboard do.	S.S.W.	

* There are only nine points.

By referring to the diagram of the experiments made on board the Alexander under your direction, on the 27th of July, it appears that the deviation then found on any of the above courses is totally inadequate to account for such a difference; the amount being now almost as many *points*, in some instances, as it then was *degrees*.

This deviation has become less perceptible since the 28th and 29th, though it is still found frequently to be much greater than on the coast of Greenland.

I have the honour to be, *&c. &c.*

(Signed) W. E. PARRY.

To Capt. JOHN Ross,
H.M.S. Isabella, at Sea.

The Diagram, No. 4, exhibits the extraordinary alteration that was found to have taken place in the Alexander's points of change, which were now ascertained to be, both of them, to the Northward of East and West. It seems completely to prove, that the *ship's* attraction, or magnetism, is independent of any other influence with regard to its direction; and, that its amount is governed (though by no means regularly) by the amount of dip and variation, in a considerable degree.

The amount of the Isabella's deviation having been fully determined in the month of July, when the variation was between 80° and 90° West, it only remained to remark its increase, or decrease, as we advanced to the North and West; and how it might be affected by changes of

climate. It is to be observed, that, until the 21st of August, almost daily opportunities occurred to obtain the deviation, by taking from the ship, and on the ice, the bearings of distant objects. After the variation exceeded 90°, the deviation did not increase perceptibly; but humidity seemed to increase it considerably. When the ship was fast to the land-ice, in several instances there was a difference of 7° in the transit bearing of two distant objects, and with the ship's head on the points of greatest deviation, it increased from 22° to 29°. The variation might, however, have been increased by the same cause, as well as the deviation; for, in experiments made of the same kind, I never found so much difference when the variation and deviation had contrary names. The greatest variation actually observed on the ice, was 110° W. in lat. 76° 45′ N., and long. 77° W. At Cape Byam Martin, in lat. 73° 33′ N. and long. 77° 10′ W., it was observed to be 109° west: but the bearing of two points in one, to the west of that Cape, being taken, first, in long. 81° west, and secondly, from Possession Bay, an increase of 7° was found (the hygrometer being nearly the same), hence the variation in 74° N. and 81° W., was ascertained to be 115°, having deducted 1° for increase of deviation. Here it is to be observed that, in consequence of the alteration which is mentioned before to have taken place in the Alexander's points of change, and the discovery made on the 28th of August, that her deviation had increased, and the points of change not having been determined till our arrival at Lerwick, all the bearings of places in the log of that ship from the day that alteration took place till our reaching Shetland, are incorrect, and cannot be reduced to truth; for, as I have before observed, they cannot be made to intersect; and there is one remarkable instance

where Cape Walsingham has been brought so far to the eastward, as to place it considerably outside the Isabella's track. On the contrary, in reference to several days' works, given in full in the Journal I kept, it will be found, that the reckoning and observations agree so well, as completely to prove that the variation can be corrected to the nearest degree; and, consequently, the true courses to be steered, and the bearings of objects may be found to the greatest accuracy. In my Journal, the variation corrected for deviation is given on every course, in a column next to the compass courses.

After the 1st of September, no good opportunity offered for ascertaining the deviation, but it was found to decrease rapidly after the variation was less than 60°. During the month of October, few observations were made, but the variation and deviation decreased together; and, on the arrival of the two ships at Lerwick, a set of experiments were made under my direction on board each, which have been illustrated in the diagrams, Nos. 2 and 4.

The several facts to be gathered from all the experiments made at different times, appear to be the following:—

1*st*. That every ship has an individual attraction which affects the compasses on board her; and to ascertain the exact quantity of its effect, though possible, requires the most particular care and the nicest attention.

2*d*. The effect of this attraction being different in different ships, and not progressive always, but often irregular, no general calculation will therefore apply in the case of all ships, to ascertain it for the purpose of correction; and, consequently, all the rules hitherto given

for obtaining it, particularly in arctic climates, cannot be relied on.

3*d*. As six compasses were compared with each other on board the Isabella, and found to agree in the *same* place; and all to disagree when placed in different situations between the stern and the foremast, it is evident that the deviation in any ship will vary according to the station of the compass at the time of using it; and, therefore, as the point of change will not be the same at every part of the ship, all observations must be made in one and the same place, where the point of change has been obtained, and to which only that point of change will apply.

4*th*. The deviation does not always continue the same under the same apparent circumstances, and varies according to the point the ship's head is on.

5*th*. The deviation appeared to be materially affected by heat and cold, as well as by atmospheric humidity and density.

6*th*. The direction of the wind seems to have an irregular effect on the deviation.

7*th*. The dip also has an irregular effect on the deviation.

8*th*. That though the points of change found with the compass in the same part of the ship will remain the same, unless some material alteration is made in the stowage of metallic substances on board,

yet the *amount* of deviation with the ship's head on any point of the compass will bear a proportion, though not a regular one, with the increase or decrease of the variation and dip; by both of which the *deviation* appears in some degree to be governed, though not the points of its change, they seeming to be independent of any influence but the ship's attraction or magnetism; and which is not of *equal* force in every part of the same ship, nor, perhaps, alike in any two. It is, however, presumed, that the experiments and observations that have been made, and the rules proposed before, and exemplified on, the 4th and 19th of June, and in the month of July, at the Three Islands, will be sufficient to correct the errors in the mariner's course, which have so often proved fatal, and hitherto been attributed, perhaps, to defects in compasses, to currents, and other unaccountable causes.

In conclusion, it now, therefore, only remains for me to endeavour further to explain :—

1*st*. To shew how the deviation may be obtained when the variation of the compass has been found, by observations made, out of the influence of the ship; and,

2*dly*, To ascertain the true variation on board a ship at sea, when the variation is not known.

The first is an easy process for one of the meanest capacity, being simply to find the point of change, and then the difference on the point steered.

RULE

To find the Point of Change in Deviation.

Let the bearing of one, or the transit of two distant objects, (whose *true* bearing from the ship, or from each other, is known) be taken, with the ship's head at several points of the compass; if they all agree the ship has no deviation; but, if not, the *one* which is found to *agree* is the point of change.

RULE

To find the Deviation for the Point steered.

Let the bearing of the same object be taken with the ship's head on the point of the course steered; and add, or subtract, the difference between them, as it increases, or decreases, the variation.

To find the deviation at sea when a distant object is in view, whose true magnetic bearing is not known: let a boat be sent out of the ship's attraction, to take the bearing of the object, and then the bearing of it is to be taken from the ship, in the manner before described. But even when no distant object is in view, it can be done in fine weather with smooth water, by veering a boat (copper fastened) astern with a compass. The ship is then to steer on different courses, (the boat always keeping her masts in one), until the compasses of

the ship and boat agree. If there is no difference between them on any point, the ship has no deviation. But whatever difference is found between them on any point, that is the ship's deviation for *that* particular point, and must be added, or subtracted, to correct the ship's course on *that* point, according to the true magnetic course of the boat. And, in like manner, the respective differences found on the several points, are to be applied to each. On whatever point the courses of the boat and the ship agree, when her masts are in one, *that* is the ship's point of change. The result of observations made with the ship's head on *this* point will give the true variation of the compass; but if observed on any other points, the error of variation will be according to the amount of deviation, or differences found on those points respectively, between the course of the ship and boat, and must be applied + or − as the case may require, to correct it. The variation may be observed, either before or after this process, for finding the ship's point of change and deviation; and if amplitudes, or azimuths, are taken at different parts of the ship, the difference between the azimuth compass (wherever it may stand), and the compass the ship steers by, ought always to be taken, and applied in like manner to obtain the *true* variation.

It would be of great benefit to navigation if the bearings of remarkable head-lands, and other objects, on the coasts of different countries, were *correctly* taken, and inserted in published charts. For, a ship, able to approach near enough to take the transit bearing of any two such objects, whose relative situations were exactly true, could thus know at once her *deviation*, on whatever course she was steering (if the true variation was on the charts), since it would

be the difference between *it* and the true transit bearing laid down on the chart; taking into consideration, at the same time, the known variation. For instance, supposing a ship to be steering west by compass, along a coast where two remarkable objects are situated *true* north and south of each other, and the variation laid down on the chart is 29° west. On setting these objects in one from the ship, they are found to bear by compass N. 24 E., making a difference of 5° for her deviation *on* the *west* point. So that if she had now to steer a correct *magnetic* west course, it must be shaped W. 5° S; or to make a *true* west course, W. 24° N. according to the variation of 29° west.

If, again, with her head N. by E. she finds the transit bearing of the two objects to be N. 29° E. by compass, agreeing with that laid down on the chart; according to the variation, then, *that* is the point of change, because there is *no deviation.*

Again, if in steering east by compass, she finds the transit bearing of the two objects to be N. 34° E. by compass, the difference between it and that on the chart, according to the variation, being 5°; therefore, to shape a correct magnetic east course, she must steer E. 5° S.; or, to make a *true* east course, E. 34° S.

Men-of-war, and, indeed, all ships, should, at every opportunity, try the deviation, and ascertain their points of change; and, after it is found, the metallic matter ought not, in any quantity, to be removed.

JOHN ROSS.

APPENDIX, No. II.

ZOOLOGICAL MEMORANDA.

INTRODUCTION.

FOR the following Article I am indebted to Mr. Edwards, Surgeon, and to Mr. Beverley, Assistant-Surgeon, of the Isabella. To these Gentlemen, and most particularly to Captain Sabine, I intrusted the execution of this department of my Instructions, according to the following Extract from them;—

"And have also, at the recommendation of the President and Council "of the Royal Society, ordered to be received on board the Isabella, "Captain Sabine, of the Royal Artillery, *who is represented to us* as a "Gentleman well skilled in Astronomy, Natural History, and various "branches of knowledge; to assist you in making such observations as "may tend to the improvement of Geography and Navigation, and the "advancement of science *in* general.

"You are to make use of every means in your power, to collect and "preserve such specimens of the animal, mineral, and vegetable, kingdoms, "as you can conveniently stow on board the ships: and of the larger "animals you are to cause accurate drawings to be made, to accompany "and elucidate the descriptions of them. In this, as well as in every "other part of your scientific duty, we trust that you will receive material "assistance from Captain Sabine."

The voyage having terminated, I applied to the latter officer for his reports and drawings on this subject, which he declined giving on the following grounds:—

" DEAR SIR,

" In reply to your request for information on Natural History, I have " no pretension to more than a very ordinary knowledge on any branch of it, " excepting Ornithology *.

" EDWARD SABINE."

" DEAR SIR,

" In reply to your note of Sunday night, the specimens of Natural " History being now at the British Museum, I am in almost daily habits of " communication with Dr. Leach, to whom I supply all the information " that my notes, which are very rough, and my memory can furnish.

" EDWARD SABINE."

From these communications to Dr. Leach, no result, however, followed; nor was any memorial furnished to me, as, from the nature of my Instructions I was entitled to expect; neither was I furnished with any drawings on these subjects, which I flattered myself I should have obtained, in consequence of the talents for drawing which this Naturalist was represented to possess. I can only regret, that my own inability, and my total want of acquaintance with the science of natural history, should have rendered me incapable of filling up a blank which the public, trusting to the acquirements of that officer, as represented in my Instructions, would not have expected to find.

As the urbanity of Dr. Leach is well known to all, it is, perhaps, unnecessary thus publicly to thank him for the kindness with which he revised and corrected the report. Of this I can judge; but the knowledge which he has displayed, of which I cannot judge, is equally known to all those who are acquainted with the science which he so successfully cultivates.

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* I had the more reason to expect a communication, on the subject of ornithology at least, as the ability of Joseph Sabine, Esq. (the brother of our Naturalist,) in this department of natural history, is well known; and as I had received a letter from him, of which the following is an extract:—

" I feel particularly pleased that my brother approves of my promise made to you " yesterday, of my keeping all my specimens from the public eye, until we describe them " jointly in your account of the voyage."

ZOOLOGICAL MEMORANDA.

Class *MAMMALIA*.

Genus PHOCA, *(Seal)*.

Species 1. PHOCA BARBATA, *(Bearded Seal)*, killed on the 11th of June, in lat. 68° 23′ N., long. 55° 14′ W. A seal in its second year, according to the judgment of our Esquimaux.

Its length, from the tip of the nose to the extremity of the tail, was eight feet; its circumference, behind the fore flippers, five feet seven inches; weight, eight hundred and thirty pounds.

Fore flippers measured in length eleven inches,
in breadth six inches;
Hind flippers..... in length sixteen inches,
in breadth two feet, when expanded.

The claws of the former were black, horny, and curved; those of the latter were long and straight. Fingers five, middle ones longest in fore flippers. The body covered with thick, coarse, short, dark grey hair. The eyes about the size of an ox's, furnished with a nictitant membrane, irides dark hazel; the pupil elliptic perpendicular. No

external ears; the auricular apertures placed about two inches behind the eyes. The upper lip broad, rounded, fleshy, divided into two lobes by a deep sulcus, or division, which is black and naked; each lobe is provided with eight rows of strong white bristles, semi-pellucid, and curled at the ends. The lower lip thin and pointed. Tongue thick, pointed, and cleft; upper surface papillous. Teeth, upper front six, truncate, small; tusks solitary, truncate; grinders three, the anterior one solitary; lower front, four imperfectly developed; tusks small and obtuse; grinders seven, the two posterior imperfectly lobed, the rest being small long tuberosities, scarcely produced through the gum. The heart about the bulk of that of the ox, its texture strong; the foramen ovale obliterated (a point on which there is yet some discord among comparative anatomists). The aorta three inches diameter, its coats two lines and a half in thickness; the calibre of the pulmonary artery nearly the same; the thickness of its coat one line. Kidneys elliptic; lobes one hundred and fifty to one hundred and sixty. Stomach filled with a greenish dark fluid; its inner coat lined with ascarides an inch and a half long; they held on with great tenacity, rendering it difficult to detach them; the small intestines were inhabited thickly with teniæ, from one to five feet in length. Excrementa of the large intestines resembling thick verdigris paint. Penis about eighteen inches long, eight in circumference; the lobe about eight inches long, and three in circumference; the lower surface depressed for the reception of the urinary canal.

Species 2. PHOCA HISPIDA? (P. FŒTIDA? *Pennant.*) *The Rough Seal.* This was caught in Jacob's Bight, on the 30th of June. It was four feet in length; hair on the belly of a silvery grey, with a few

obscure dusky spots: back and sides dusky; on the latter, numerous curved lines of a silvery hue gave it a map-like appearance; the hairs longer and softer than the P. Barbata. Head round; no external ears, apertures an inch behind the eyes; eyes large, irides hazel, pupil elliptic perpendicular, furnished with a nictitant membrane; eye-brows formed of four bristles, above the inner angles of the eyes. Upper lip thick, furnished with seven rows of whiskers; lip divided by a fissure, covered with a black naked skin. Nose small. Teeth in upper jaw, four front acute, the two outer ones longest; tusks solitary, long, acute; grinders five, tricuspidate: lower front, four acute; tusks solitary; grinders five, lobed. Fore flipper with five fingers, the inner one longest; shorter in gradation, like the human foot: claws long, curved, acuminate. Hind flippers, also, armed with acuminate curved claws. The heart of this animal was examined, and in it the foramen ovale was found obliterated.

As our specimen is young, I am not certain that it is referable to the species quoted, and have therefore added a note of doubt.

Genus MUSTELA, (*Weasel*).

Species MUSTELA ERMINEA, (*Ermine Weasel*). In lat. 73° 37′, and long. 77° 25′, on the West side of Baffin's Bay, a small animal of the weasel kind was shot; its length, from the tip of the nose to the insertion of the tail, eight inches and a half; to the tip of the tail

eleven inches and a half. Head, back, and greater part of the tail, of a chesnut colour; the end of the tail black. The chin, cheeks, circle round the ears, and the toes, white; breast and belly of a yellowish white; the yellow prevailing most approximate to the chesnut.

This little animal, which has been compared with the common *Ermine Weasel* of Europe, agrees with it in every character. In the valley where it was shot, there were found hares, mice, and abundance of water birds, on the eggs of which these animals are known to feed.

Genus URSUS, (*Bear*).

URSUS ALBUS, *Brisson*, (*White Bear*). On September 10th, the boats of the Alexander pursued and attacked two bears, which were swimming in the water; one we killed, but it sank; the other, also, was, after much trouble, killed and secured, and brought on board.

	Ft.	In.
Length from the snout to the tail	7	8
Do. to shoulder-blade....	2	10
Circumference of body, near the fore legs ..	6	0
Do. of neck	3	2
Breadth of fore paw	0	10
Do. of hind paw	0	8½

	Ft.	In.
Circumference of hind leg	1	10
Do. of fore leg	I	8
Do. of snout, before the eyes	1	8
Length from the snout to the occiput	1	6
Height at the fore shoulder, a little more than	4	0
Fore claws	0	2½
Hind ditto	0	1¾
Tail	0	4

Weight, after loss of blood.....1,131½ lbs.*

Teeth, front six, above and below; tusks one inch and a half long, in the upper jaw solitary, in the under jaw approximate to the fore teeth. Grinders four, above and below; the anterior one very small, the posterior very large, the intermediate ones approximating in size to the latter. The hair white, thick, and strong, very long on the body, and more so on the limbs. Nose black; eyes dark hazel.

Genus LEPUS, (*Hare*).

Species Lepus ———? The only one of this species was shot in lat. 73° 37′, on the West side of the Straits. It was nearly the same size as *Lepus timidus*, (the common Hare): the body was white, except that a few solitary black hairs, longer than the rest, were dispersed over every part, and which appeared to be rapidly coming

* It is supposed he must have lost thirty pounds of blood.

away; the tips of the ears, and the short hair within the ears, were black; tail short and white.

It was shot on the 1st of September. Another shot by a Master of a Whaler, in May, at Hare Island, differed very little from the above. Dr. Leach thinks it to be very distinct from the common White Hare of Scotland, (LEPUS ALBUS, *Brisson*), and equally so from the LEPUS VARIABILIS, *Pallas*.

Genus BALÆNA, (*Whale*).

Species BALÆNA MYSTICETUS, (*Northern Whale*). On the 31st of July, a whale was harpooned and brought on board by the boats of the two ships. It was what the whalers called a fair-sized fish; *i. e.*, the longest of the whalebones, forming the fringe in his mouth, measured nine feet and a half.

The extreme length of this fish, from the tip of the lower lip to the furcation of the tail	46 ft.	0 in.
Girth of the animal, around the abdomen	28	0
Do. at the root of the tail.....	5	2
Length of tail from its root to the fork	4	0
Extent of ditto	15	7
Fins, length	9	0
Do. breadth	4	0
Do. thickness at the base	1	6

Spiracles two; longitudinal apertures placed nearly parallel to each other upon the top of the crown bone, about fourteen feet from the tip of the lip; they are about six inches long.

The eyes are placed on each side, about five feet from the top of the crown bone, about sixteen feet from the tip of the lip, and about one foot above, and rather behind, the angle of the mouth.

The fins are articulated about two feet obliquely behind and below the eyes.

The anus is placed about twelve feet before the extremity of the tail.

The penis about two feet before the anus; it is contained in a deep sulcus or groove, two feet long, the lips of which meet and conceal the organ. This is about nine feet long in its relaxed state, six inches in diameter at its base, gradually tapering to a point, in which the urethra terminates.

The under lip and the throat were white; a broad band of white extended across the abdomen, between the penis and the anus, which almost met on the back; the middle part of the lower surface of the tail white; on the edges of these white patches were many black blotches, giving the animal, on the whole, a pie-bald appearance.

The necessity of taking advantage of a fair wind, and clear water, obliged us to cast off the carcase, without making a further examination.

Class II. *AVES, (Birds).*

Genus FALCO, *(Falcon).*

Species SMITELLUS, *(Merlin Falcon).* Several of these birds shot in lat. 65°.

Genus SOMATERIA, *Leach, (Eider).*

Species 1. SOMATERIA SPECTABILIS, *(King Eider).* A pair only of this species was shot, in about lat. 72°. Several were seen as high as 74°, mixing with Cuthbert's Eider. It is generally named *King Duck.*

The trachea of this bird resembles that of the Anus Moschata. *See Plate* 14, *fig.* 1 *and* 2. Latham.

Species 2. SOMATERIA, *(Cuthbert's Eider),* commonly named the *Eider Duck.*

Many of these were shot in the months of June and July, between lat. 71° and 74°.

Genus CLANGULA, *Gessner, (Garrot).*

Species CLANGULA GLACIALIS, *(Northern Garrot).* One only of this species was shot in lat. 72° N.

The vulgar name is *Long-tailed Duck*.

The most remarkable circumstance connected with this bird was the construction of its trachea.

The lower portion of the trachea, about an inch in length, is composed of six bony ribs on each side, which unite posteriorly, forming a convexity. Anteriorly they advance to complete the tube, but, terminating abruptly, they form on each side a ridge of small tuberosities, leaving an open space broader at the lower than at the upper end. The continuity of the wall of the canal is, however, finished by means of four delicate bony transversed bars, connecting the opposite ridges together, over which is spread a thin transparent membrane. The canal opens into an irregular bony ampulla, or labyrinth, from whose bottom the right bronchial tube emerges. From the fore and back parts of this ampulla are given off two processes of bone, which unite, and form with its left side a kidney-form concavity, about the size of a horse-bean, over which is spread another membrane, resembling the membrana tympani of the ear, forming a membranaceous cell, from which originates the left bronchial tube. The communication between this last and the osseous one is scarcely perceptible.

The use of these complicated organs, more remarkable in the duck species than in any other of the feathered tribe, has yet to be demonstrated by the physiologist.

APPENDIX, No. II.

Genus MERGULUS, *Ray. (Sea Dove).*

Species. MERGULUS MELANOLEUCOS, *(common Sea Dove)*, popularly denominated *Little Awk*, or *Roach*.

The size of a small dove; breast and belly white, the rest of the bird black, except a white dot above the eyes. In this state of plumage they were found during the months of June, July, and August, the old bird, as well as the young in the nest.

At the end of September several were shot in lat. 66°, in all of which a change of plumage had taken place. The chin, throat, cheeks, had changed to white; the white feathers almost meeting upon the nape; the breast black and white mixed; the feathers of the scrag and interscapular regions intermixed also with some hoary feathers; the tips of the primary quill, coverts, and scapulars, white. In other respects the bird remained as in the summer months.

These birds were found in myriads, in July and August, in 75° and 76° latitude. On the west coast of Greenland many hundreds were shot daily, and supplied to the ship's company. They are extremely palatable; and, although feeding chiefly on a small species of cancer, with which the arctic seas abound, they were free from the taste of fish.

The Esquimaux of Prince Regent's Bay use their skins for their inward clothing.

Genus PROCELLARIA, *(Petrel).*

Species I. PROCELLARIA GLACIALIS, *(Fulmar Petrel).* This bird was found in great abundance in every part of the Straits and Baffin's Bay. There were two varieties. The most numerous were of a hoary grey colour, with a white bar across the wing coverts when expanded. The others were of an uniformly dusky colour; in other respects they did not differ.

These birds live upon any oily substance they can find on the surface of the sea. Their stomachs are generally found loaded with a rancid oil, which they disgorge on being wounded. They collect in great numbers around the whalers, when they have caught fish, in order to pick up the refuse, which they devour with great gluttony. Their flesh is extremely offensive.

Genus GRYLLE, *Leach;* CEPHUS, *Cuvier, (Scraber).*

Species I. GRYLLE SCAPULARIS, *Leach, (White-winged Scraber),* common name, *Black Guilemot.*

The body entirely black, except a white spot on the wing, which is a distinguishing mark of the bird in all its ages. The bill is black, and the legs and feet crimson.

It is found in every part of Baffin's Bay, lays two eggs, about the

size of a pullet's, of a dirty white, with black spots; makes its nest in the holes they find among the debris and the rocks on the shore.

A young one, shot in the beginning of August, measured twelve inches in length, and nineteen and a half in breadth; its plumage, varied black and white. The white speculum on the wings distinct, although mixed with a few dark spots; its bill black, its legs and feet dusky.

Some others were killed in the month of November, in Shetland, in whom the plumage differed little from the last, but the legs and feet had assumed the perfect crimson colour.

Genus URIA, *Brisson*, (*Guilemot*).

Species I. URIA FRANCSII, *Leach*, (*Franks's Guilemot*). Larger than the last. Breast and belly white; rest of the bird black. Found chiefly in the southern part of the Straits. No variety was found in the plumage of any shot.

This species was first discovered, off Ferroe, by F. Franks, Esq., who accompanied Captain Kater, and was sent to Dr. Leach, who gave it the above name. It was also killed by the ships that went to the Spitzbergen coast. It differs in some particulars from URIA TROILE, (*the Foolish Guilemot*), with which we, from the imperfection of descriptions, confounded it.

Genus MERGUS, *Brisson*; COLYMBUS, *Latham, &c.*; EUDYTES, *Illiger, (Diver)*.

Species I. MERGUS SEPTENTRIONALIS, (*Red-throated Diver*). One only of this species was seen; it was brought on board by some of the natives of Jacob's Bight.

Genus LARUS, (*Gull*).

Species I. LARUS TRIDACTYLUS, (*Kittiwake Gull*). This is a beautiful Gull, and is very numerous in the Straits. In the full-aged bird the bill is of a beautiful lemon yellow; the orbits and inside of the mouth of a beautiful saffron red, indes straw colour, legs of a livid colour. The top of the head, the nape, back, wings, of a fine ash colour; tips of the wing-coverts black, the rest of the bird white.

In several young birds, shot in September, in lat. 70°, the bill and orbits were of a deep livid, in some the yellow was making its appearance. The plumage differed from the old ones, in the ash colour being deeper, and more general in the upper parts of the bird; many of the wing, wing-covert, and tail feathers, being tipped, otherwise marked with black; the lower parts, like the old birds, white. In this stage of plumage they are known as the *Tarrock Gull*.

Species II. LARUS EBURNEUS, (*the Ivory Gull*). This bird is rather larger than the last. The bill of a deep lead colour, the edges and tips yellowish, two inches long from the angle of the mouth; the orbits of the eyes red, the irides brown; legs and feet black; tarsus one inch and three quarters; the whole plumage of an immaculate white. Length nineteen inches, breadth forty-one inches.

The young birds differed only from the above, (which was a female) in being spotted black on different parts of the wing-coverts and spurious wings.

LARUS GLAUCUS.

Species I. LARUS GLAUCUS. Bill light horn colour, strong, gibbosity on the lower mandible, red; nostrils, linear, placed in the middle of the bill, no cere; length of bill from the base, two and a half inches; from the angle of the mouth, three inches; irides, straw colour.

Interscapulars, back, and wing-coverts, light ash colour; the rest of the plumage perfectly white.

Wings as long as the tail, the tail cuneiform; thighs, legs, and feet, livid flesh colour; tarsus, two inches and three quarters; length, from twenty-six to twenty-eight inches; extent, from fifty-eight to sixty-four inches; there is no difference between the male and the female.

These birds were found from lat. 65° to 76°; more numerous to the northward.

Species I. On June 6th; in lat. 65° 35′, a gull was shot, its length was twenty-six inches; extent, fifty-nine inches; bill, of a dirty flesh colour; the tip, dark horn colour; gibbosity, red; legs and feet, livid flesh colour; plumage, white, but mottled on the back; wing-coverts, and breast, with indistinct shades of brown; toes, four, hind one clawed and strong.

June 9th, in lat. 66° 20′, killed another gull, whose character agreed in all respects with the last; except, that instead of being mottled, there was only a slight shade of ash on the wing-coverts, the rest of the plumage being white.

July 11th, in lat. 74°, two females were shot, differing from the former in being smaller, and in having yellow bills; the ash colour was also of a bluer hue, and was more general on the back and wings. These are the only two birds that answer to the Larus Glaucus of Linnæus and Pennant, the former are clearly a different species: No. 1, being the species in maturity; Nos. 2 and 3, verging towards complete plumage.

The habits of this last are also the habits of the Burgermeister of the Dutch; they build on high cliffs, and they destroy and eat the smaller aquatic birds. We did not, absolutely, see them attack other birds, but when our parties were out shooting the little awk, these gulls, hovering over our heads, would pounce upon the wounded birds, and carry them off. A female bird that was shot, disgorged a whole bird; and, being brought on board, it smelled so offensively, that it was immediately examined, and in its stomach was found another bird quite whole; the stomach was distended, and in a state

of mortification as well as the small bird. The Gull, no doubt, had been unable to eject its prey, and the function of the stomach being suspended by the distension, irritation, inflammation, and, at length, putrefaction had ensued

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Genus STERCORARIUS, *Brisson.* *(Jager.)*

Species I. STERCORARIUS CEPPHUS, (*Arctic Jager*), common appellation, *Arctic Gull.* Bill, one inch and a quarter from the base, black; upper mandible, much curved at the point, with an odontoid procep; lower mandible, gibbous; nostrils, linear, situated in a cere; tongue, cleft; front, crown, and nape, dark brown; neck, cheeks, chin, throat, breast, and belly, white; about the vent varied with brown; all the rest of the body, dusky; wings, deeper coloured; the two middle feathers of the tail seven inches longer than the rest; legs, lead colour; thighs and feet, black; hind toe, clawed; length, twenty-one inches, including the two tail feathers; breadth, thirty-seven inches; irides, amber brown. This is the full-aged bird.

Some young ones shot, July 27th, differed, in the bill being lighter coloured; all the brown plumage of a lighter shade; the white plumage beneath, less clear; the neck, all round, and the hind part of the abdomen, varied more or less with dusky feathers; the tail-coverts, barred white; wing and tail linings, mottled brown and white; shafts of the two outer primary quill feathers, white; the rest gradually browner; length from fourteen to fourteen inches and a half; breadth, thirty-six inches and a half to thirty-eight inches and

XEME.

a half; the two middle tail feathers in these three young ones, were from two to four inches only in length.

Genus XEMA, *Leach.* (*Xeme*).

This genus approaches to the GULL in the form of its beak, and to the TERN, in having a furcate tail, as well as in the general form and proportion of its legs; the only species hitherto discovered, is the following:—

Species XEMA SABINI, (*Sabine's Xeme, non-descript.*) LARUS SABINI, (*Sabine*). This bird, which is a new species, was found only on a small island in lat. 75° 20′ on the west coast of Greenland; it was found associating with the greater Tern, and when it saw its nest in danger, like them, uttering the same clamorous notes, flew, without fear, above its nest close to the head of the party. Its eggs were of the same size and form, and nearly of the same colour, as those of the Tern.

LARUS SABINI. (*Sabine Thom. Ann of Philos.*, Vol. xiii.) Bill, one inch and a half from the angle of the mouth, an inch long from the base; upper mandible, a little curved at the point; the lower mandible, with the angular gibbosity peculiar to the Gull; the inner half of the bill black, the rest yellow; nostrils, linear, situated in the middle of the bill; tongue, long and cleft; inside of the mouth, and the naked

orbits of the eyes, vermilion; irides, black; the nape, throat, and whole head, of a very deep cinereous, bounded by a black ring round the neck, two lines broad; a small white spot under the eye; the neck, interscapular; region, and all underneath, white; back, wing-coverts, and scapulars, bright cinereous; spurious wings, black; the shafts, outer webs, and half of the inner webs of the first five primary quill-feathers, black; tips, white; the inner half of the inner webs, white to within an inch of their tips; the sixth feather white, with a little black in the middle; all the rest of the quill-feathers, white; tail, white; outer feathers an inch longer than the middle ones, wings an inch longer than the tail; legs and feet, black; latter palmate four-toed; the hind one, clawed small; length, fourteen inches and a half; extent, thirty-four inches and a half; tarsus, one inch and a half; sex makes no difference in plumage; weight of male bird, seven ounces and a half; female, six ounces and a half.

Genus STERNA, (*Tern.*)

Species 1. STERNA HIRUNDO, (*common Tern.*) This beautiful bird is found in every part of the Straits near the land, associating with the smaller Gulls, particularly the Kittywake; their eggs are about the size of a pigeon's, of a dirty green hue, with small dark blotches; the bill is beautifully subulate, crimson; in one or two, shot to the southward, the lip was black; front, crown, and nape, black; back, wings, wing-coverts, bright cinereous; outer web of first primary quill-feather, black; the outer web of the others, cinereous; the inner

half of all the inner webs, cinereous; the outer half white to near their tips, which are black; tail coverts, and the rest of the bird, white; in some, breast is tinged cinereous; tail, forked; the two outer feathers, longest; their outer webs, black; legs and feet, crimson; wings as long as the tail; length, sixteen inches; extent, twenty-five inches.

ORDER GRALLÆ.

Genus TRINGA, (*Genus Scolopax, Knot,* 53 *Linn.*)

Species 1. TRINGA ISLANDICA, (*Iceland Knot*), found about Hare Island, and Jacob's Bight, as high as lat. 72°.

Genus PELIDNA, *Cuvier,* (*Dunlin.*)

Species 1. PELIDNA ALPINA, (*Alpine Dunlin*).

Genus LOBIPES, *Cuvier,* (*Lobefoot.*)

Species 1. LOBIPES HYPERBOREAS, (*Red Lobefoot*), commonly named *Red Phaleripe,* found as high as Jacob's Bight.

Genus LAGOPUS, *Ray.* (*Ptarmigan.*)

Species 1. LAGOPUS MUTUS. (*White Ptarmigan.*) A few only of this species were seen in the Waygat and in Jacob's Bight.

The small bird was perfectly white, with large scarlet naked eye-brows, which was inconspicuous in the female; the plumage of the latter was variegated white, black, and rusty-rufous; the legs and feet of both were thickly clothed with long soft white feathers down to the claws, giving them the exact resemblance of a hare's foot, whence the name. It is the White Partridge of Pennant. Edwards, *Ellis's Voyage*, page 37, &c.

Genus EMBERIZA, (*Bunting.*)

EMBERIZA NIVALIS, (*Snow Bunting*), found in every part of the Straits as high as 75°, lat.

A LIST OF INVERTEBRATE ANIMALS,

DISCOVERED BY HIS MAJESTY'S SHIP ISABELLA,

IN A VOYAGE TO THE ARCTIC REGIONS;

CORRECTED BY DR. W. E. LEACH.

Type MOLLUSCA.

Class I. PTEROPODA.

Genus I. CLIO, (*Pallas.*)

Species 1. Borealis.

Genus II. LIMACINA, (*Cuvier*).

Species 1. *Arctica,* Argonauta Arctica, *O. Fabricii.*

Class II. GASTEROPODA.

Genus III. MARGARITA, (*Leach*).

Species 1. *Arctica,* (*new species*). M. purpurascente carnea-tenuiter striolata, operculo testaceo. Baffin's Bay.

Genus IV. NATICA, (*Lamarck*).

Species 1. *Beverlii,* (*new species*). N. Spira elevatiuscula, anfractibus superioribus convexiusculis. Baffin's Bay.

Species II. *Fragilis*, (*new species*). N. Spira fere obsoleta, testa fragilissima, operculo hyalino. Baffin's Bay.

Class III. ACEPHALA.

Genus V. MODIOLA, (*Lamarck*).

Species 1. *Arctica*, (*new species*). M. alta, radiatim late striata. Baffin's Bay.

Species 2. A fragment of a species much allied to, if not the same with, *discrepans*, occurred amongst soundings, from lat. 62° N., long. 62° W.

Genus VI. NICANIA, (*Leach*).

Species 1. *Striata*, (*new species*). N. concentrice sulcata, sub ambonibus cordato-impressa. Lat. 76° 42′ N., long. 76° W.

Species 2. *Banksii*. N. glabriuscula polita, sub ambonibus impresso-excavata. Baffin's Bay. Received also from the coast of Spitzbergen.

Genus VII. *Crassina*, (*Lamarck*).

Species 1. *Scotica*, Venus Scotica. (*Maton*) Lat. 62° N., long. 62° W. Depth 80 fathoms.

Genus VIII. MACOMA, (*Leach*).

Species 1. *Tenera*. M. concentrice striolata, epidermide virides-cente-lutea. Lat. 76° N., long. 76° W.

Type ANNULOSA.

Class ANNELEIDES, (*Cuvier.*)

Genus I. NEREIS, (*Linné*).

Species 1. *Phyllophorus.* N. ore edentulo, pedibus basi lamellis foliosis instructis. Baffin's Bay.

Genus II. LEPIDONOTUS, (*Leach*).

Species 1. *Rossii*, (*new species*). L. pedibus densissime testaceo-hirsutis, squamis dorsalibus cœrulescente-griseis. Baffin's Bay.

Class CRUSTACEA.

Genus III. HIPPOLYTE, (*Leach*).

A fine new species was found near a mass of ice.

Genus IV. GAMMARUS, (*Lattreille*).

Species 1. *Sabini*, (*new species*). G. segmentis dorsalibus postice falcato-productis. Baffin's Bay.

Type AMORPHA.

An endless variety of the Class ÆALEPHÆ, were brought home, and sent to the Museum, but in a state so much contracted by the spirit, as to render it impossible for Dr. Leach to make out their

genera. Observations on these animals, whilst living, accompanied by accurate drawings, are quite necessary to render the preserved specimens of any degree of use; and it is to be regretted, that no Naturalist, capable of performing these indispensable parts of his duties, accompanied the expedition.

APPENDIX, No. III.

GEOLOGICAL MEMORANDA.

I THINK it necessary to inform my readers, that the following pages, on the subject of Rocks and Minerals, constitute all that I have to give on the geological history of the countries we visited. My assistant, as well as myself, being unfortunately ignorant of that part of natural history, all I could do was to bring on board a part of every thing I met with; and being alike unacquainted with the substances, and the mode of collecting them, I fear very little information will be derived from them.

Being unable to obtain even the names of the specimens collected, from the officer intrusted with the department of Natural History, I have been obliged to apply for assistance on this subject since my return; and Dr. M'Culloch has kindly furnished me with what I now lay before the Public.

GEOLOGICAL MEMORANDA.

THE following is a catalogue of the specimens which were subjected to my examination by Captain Ross. They appear to have been collected without care, and with no attention to their relative situations; the greater number, indeed, being casual fragments, or pebbles picked up on the shore. No direct observations were recorded, for the purpose of throwing light on them; either respecting the forms of the land, or the appearances of stratification, or otherwise, so often visible, even at a distance, on the sea coasts. The little additional illustration which they admit, was furnished by Captain Ross's observations, made with other views, and by some of his very characteristic drawings of the land. I have to regret that I had no means of adding any thing to render this very meagre list more interesting, without indulging in unwarrantable conjectures.

The detached situation of the only three spots, of which the examination is at all tolerable, namely, Waygatt Isle and the adjacent shore, Prince Regent's Bay, and Possession Bay, is such as to prevent any general conclusion respecting the structure of this extensive region. If it were justifiable to draw such a conclusion from the characters of

those tracts, it might be supposed that the whole country in the interior consisted of granite and gneiss; or, at least, that these were the prevailing rocks. It is at the same time evident, that some of the shores are skirted by secondary strata, of which the proof is to be found, not only in the nature of the rocks described, but in the appended list of soundings, which, in some instances, prove the existence of secondary limestone. It is impossible to pass from the subject, however, without pointing out a remarkable circumstance; namely, that in three out of the four places of this extensive bay that were examined, there are indications of a trap formation. It would be a singular chance, if this should exist only in those three spots; and on any calculation of probabilities, it is likely that the trap rocks will be found to form a very characteristic feature on the shores of Baffin's Bay, should future navigators have time to investigate them. As these are among the most limited and partial of the several classes of rock, their occurrence here through so extensive a range, should it prove to be the fact, could not fail to be considered an interesting circumstance.

CATALOGUE OF THE SPECIMENS

OF

ROCKS AND MINERALS,

BROUGHT BY

CAPTAIN ROSS FROM DAVIS' STRAIT AND BAFFIN'S BAY.

SPECIMENS FOUND ON AN ICEBERG,

In Lat. 68° 22′, *Long.* 53° 47′ *W.*

SEVERAL varieties of granite and gneiss.

These present the most ordinary characters, and require no notice as specimens.

Basalt.

The iceberg from which these specimens were brought, was met with on the east coast of Davis' Strait. It is uncertain, of course, whether it was formed on the nearest shore to the actual position of the ship; and it cannot, therefore, indicate any thing respecting the nature of the country, which, by Captain Ross's account, presented a rocky shore, skirted by islands, rising in the interior into high mountains.

SPECIMENS FROM WAYGATT ISLAND,

Lat. 70° 26′ *N.*, *Long.* 54° 40′ *to* 55° *W.*

GRANITE of different aspects.

Gneiss, also of different aspects; some of them, like those mentioned in the former article, containing green compact felspar.

Quartz rock.

Graywacke schist.

Gray earthy amygdaloids, containing nadelstein, and brown spar; the latter crystallized, and of a dark and red brown colour: the cavities are also frequently empty.

Brown clay stone.

Siliceous iron stone.

Common argillaceous iron stone.

Red iron clay.

Semi-opal.

Chalcedony, in laminæ, apparently formed in the fissures of a rock; and also in crusts with a botryoidal surface.

Cacholong and chalcedony interlaminated, and resembling the specimens brought from Faroe and Iceland.

Geodes of chalcedony, with crystals of quartz in the interior.

Nadelstein, apparently washed out of amygdaloidal trap.

Wood coal, resembling that found under the trap rocks in the Western islands of Scotland.

A flint, of the same nature as those found in the London gravel.

Quartz, apparently from veins.

From these specimens, a tolerable conjecture may be formed of the general structure of this island; some assistance having been also derived from an accurate drawing of the north-east shore, made by Captain Ross; from which the relative space occupied by the trap rocks above indicated, seems capable of being determined.

The general outline of the interior, and of a considerable proportion of the north and east coasts, bespeak the existence of primary rocks; the hills rising to an average height of one thousand feet, and presenting acute summits, declining by sharp prolonged ridges.

Since the specimens of granite possess the character of that substance as it is found forming mountain masses, it is probable that this rock forms a portion at least of the country. The gneiss may be expected to constitute a much larger part, as far as a judgment can be formed from the characters of the hills as they are represented in the drawing. Both the quartz rock and the graywacke schist have the characters of these substances as they are found alternating with gneiss on the north-west coast of Scotland; but no further conjectures can be formed respecting their actual position.

Captain Ross informs me, that the specimens of chalcedony were found on the side of a mountain of about five hundred feet in elevation; that the rocks are naked and vertical, and appear like the ruins of buildings. On consulting his drawing, of which the details are very characteristic, it is apparent that there is a ridge of hills of the trap formation, skirting the shore for a space of about four miles, and interrupted in two places. This ridge rises to about half the general elevation of the island, and presents the vertical prismatic fracture at the summit, accompanied by the usual rapid slope below. The speci-

mens of claystone and amygdaloid, as well as the chalcedonies and nadelstein, are evidently derived from this mass of rock.

No specimens of secondary rocks were contained in this parcel, but the iron stones are similar to those found in the strata which in England accompany coal, and they indicate the probable existence of a body of secondary strata subjacent to the trap.

Of the origin of the flint, I cannot pretend to offer any conjecture. It would have been interesting to have traced it to its native rock, as it does not appear that any gravel, analagous to that which in this country contains these flints, is found in this island. Should such flints be found an inmate of the trap rocks, it would throw light on a very interesting and difficult question in geology.

The wood coal is an interesting specimen. The structure resembles that of oak, and it is obviously part of a tree of considerable size; a circumstance of some curiosity in a spot where no tree now grows, or ever could have grown in the actual state of the climate. It presents a difficulty analagous to that of the surturbrand of Iceland.

SPECIMENS FROM FOUR ISLAND POINT,

Lat. 70° 46′, *Long.* 53° 3′.

Granite.

Different varieties of gneiss. One of the most remarkable of these consists of the most ordinary ingredients, with the addition of green compact felspar.

Hornblende schist.

Actinolite schist.

Argillaceous schists, varying between clayslate and graywacke.

A coarse grey sandstone, belonging apparently to the secondary strata.

A very compact fine-grained basalt.

Greenstone.

Earthy amygdaloids, of a yellowish brown and of a reddish colour; containing chalcedony, quartz, calcareous spar, and a yellowish chlorite, apparently in a state of decomposition.

An amygdaloid with a basis of black pitchstone, containing iron clay.

Chalcedonic nodules.

Pale grey chert.

Nodules of chalcedony.

Nodules of radiating arragonite.

Fibrous calcareous spar.

Mesotype.

Felspar, apparently from gneiss.

Quartz, apparently from veins.

Lieutenant Robertson informs me, that he here saw columns resembling those of Arthur's Seat, resting on a thick bed of clay as bright as vermilion. Captain Ross not having been on shore, no other observation accompanies these specimens, which, like almost all the rest in this list, consist of casual fragments, collected at hazard.

From the granite, the gneiss, the hornblende schist, the argillaceous schist, and the sandstone, it may be concluded that this part of the country presents examples both of the primary and the secondary rocks; and, from the aspect of the land, it is probable that the former

are succeeded by a tract of the latter strata skirting the shore. The vermilion clay of Lieutenant Robertson is obviously the common iron clay which accompanies the trap rocks; the colour of which, when contrasted with the darkness of the surrounding substances, is sufficiently bright to justify this hyperbolical term. It is probable that the basalt is derived from these columns; the amygdaloids must be conceived to appertain to other parts of this deposit of trap, which is undoubtedly connected with the secondary sandstone described above.

The chert is probably connected with the trap rocks. It is not unusual to find it accompanying the argillaceous limestones, where these are traversed by large veins, or overwhelmed by masses of that rock.

The pitchstone amygdaloid presents a variety of which I have never seen a parallel example. To describe its basis accurately, it may be compared to that of the Scuir of Egg; adding only, that it occupies a station still nearer to true pitchstone; appearing to be as nearly intermediate between that substance and the rock in question, as this is between pitchstone and basalt. It is an interesting circumstance, as adding one more to the numerous analogies already existing between those rocks.

The other specimens require no particular notice; but it may be remarked, that there is a general resemblance between all the rocks and minerals collected in this spot, and those brought from Waygatt's Island. As the distance between the two places is not above twenty miles, it may be imagined that the trap in both are parts of a common formation; and it is not unlikely, that the same general characters will be found to prevail to a greater extent along this coast.

SPECIMENS FROM THE THREE ISLANDS OF BAFFIN,

Lat. 74° 1′, *Long.* 57° 25′

Gneiss, abounding in garnets, and containing molybdena.

Massive brown garnet, breaking with flat faces parallel to those of a crystal, and of a pseudo-metallic lustre; it contains attached and imbedded crystals of brown hexagonal mica.

The gneiss is very remarkable for the large quantity of garnets it contains. These are often of a large size, and are invariably of a pale crimson colour, and transparent: they are all so much fissured as to be of no value; but it must be remarked, that no specimens of fresh rock were brought, the whole of them on the contrary being nearly rotten. This gneiss appears to split into thin and flat slates; but whether that, also, is not the consequence of decomposition, cannot be ascertained from the state of the specimens. The existence of molybdena in this form is, I believe, a fact hitherto unobserved: it is in minute scales, dispersed all through the rock so as to form an integrant part of the mass.

SPECIMENS FROM CAPE MELVILLE.

Granite.

Porphyry.

It might be presumed from the appearance of these specimens, that this Cape is a mass of granite, traversed by veins of porphyry; but

the drawing seems to indicate stratification, from which it would be more natural to conclude that it consists of gneiss. The granite, however, does not appear to have been derived from veins. It is of little use to make conjectures on this subject.

SPECIMENS FROM BUSHNAN'S ISLE,

Lat. 76° 04′, *Long.* 65° 26′ *W*

Granite.
Gneiss
Micaceous schist.
Claystone.
Amygdaloidal claystone.

SPECIMENS FROM CAPE YORK,

KNOWN TO THE NATIVES BY THE NAME OF INMALLICK,

Lat. 76°, *Long.* 66° 46′ *W.*

A porphyritic greenstone. This is the substance used by the natives in cutting off their iron from the masses.

SPECIMENS FROM THE COAST BETWEEN CAPE YORK AND CAPE DUDLEY DIGGES,

Lat. from 75° 45′ *to* 76° 10′, *Long. from* 67° *to* 68° 40′.

The specimens from this coast, which includes the Crimson Cliffs, resemble those from Bushnan's Isle so precisely that it is unnecessary to enumerate them.

The tract of country from which the four parcels of specimens immediately preceding were brought, occupies a space on the shore of about sixty miles. The general characters of the land may be collected from the various drawings engraved for the journal of the voyage, and from the chart of Prince Regent's Bay. From both sources of information, imperfect as they are, it may be concluded that the country in general is of primary formation. From the forms of the mountains in the interior, it is probable they consist of granite; but, even on this, there can be no conclusion drawn, as gneiss is found to assume forms equally rugged and acute. The cliffs, however, near the shore, present characters which can scarcely belong to that rock; and it is, therefore, probable that they consist of gneiss, which seems to be the prevailing substance in those parts of Baffin's Bay actually examined by Captain Ross.

On considering the claystone of Bushnan's Island, and the greenstone of Cape York, it is apparent that here also, as at Waygatt's Island and Four Island Point, there is a trap formation; but it is impossible to conjecture the extent of it, as there are no observations

accompanying these specimens, and the drawings of the coast have been taken from too great a distance to allow of any judgment being formed respecting the nature of the rocks.

SPECIMENS FROM POSSESSION BAY AND CAPE BYAM MARTIN,

Lat. 73° 33′, *Long.* 77° 28′.

Granite of various aspects; some specimens containing garnets.

Gneiss of different kinds, some specimens containing pyrites, others garnets, and others again, green compact felspar.

Quartz rock.

Red sandstone.

Red shale.

Grey calcareous sandstone.

Grey argillaceous limestone.

Jasper.

Siliceous schist.

Chert.

Purplish and ochre-coloured amygdaloidal claystone.

Black basaltic porphyry.

Grey hard claystone porphyry.

Coloured agates.

Quartz, with imbedded garnets.

Felspar, with the same.

The greater number of these specimens consisted of rolled stones, gathered in the bed of a river, on a shingly beach, which is found near

the sea, at the foot of the cliffs. The mountains in the interior are very lofty, but no other information of a geological nature can be collected from the officers who landed in this place: the specimens, nevertheless, indicate a more complete series of rocks in this place, than in any of those examined during the expedition. There can be no doubt, from the shape of the land, as represented in the drawings, that the primary rocks occupy the high mountains in the interior, and reach also to the shore near Possession Mount. It is not so easy to conjecture the position of the secondary rocks, of which no decided indications appear in the external form of the land: the series of these is, however, very perfect, extending from the red sandstone upwards, and finally covered, to all appearance, by a formation of trap. The jasper, the siliceous schist, and the chert, resemble exactly those specimens which are found in the Island of Sky, among the beds of shale, sandstone, and limestone, when these are immediately in contact with the larger masses of trap; and, probably, they here also owe their origin to the same cause.

The quartz and the felspar, containing garnets, are probably derived from veins of gneiss, where similar appearances are not uncommon.

The agates must be referred to the trap.

With respect to the gneiss, which contains green compact felspar, and which appears to be of common occurrence on this coast, it may be remarked, that it is exactly similar to that which occurs abundantly in the Western isles, and more particularly on the Western coast of Ross-shire, prevailing particularly about Loch Ew and Loch Greinord.

SPECIMENS FROM AGNES MONUMENT,

Lat. 70° 37′ *N.*, *Long.* 67° 30′ *W.*

Granite.

Gneiss.

Graywacke schist.

TABLE of SOUNDINGS obtained in Davis' Strait and Baffin's Bay.

Date	Latitude N.	Longitude W.	Depth of Water	Nearest Land seen	True Bearing	Distance in Miles	Nature of the Soundings and Remarks.
	° ′ ″	° ′ ″	Fathoms				
June 3	65 35	54 16	45	Cocquin's Sound	E. by S.	36	Broken shells, (land high.)
4	65 42	54 50	70	Cocquin's Sound	E.	40	White coral and greenish mud.
,,	65 41	54 15	50	Cocquin's Sound	E.	35	White coral and shells.
6	65 37	.....	300	Queen Ann Cape	E. by N.	.....	Mud, (no land in sight.)
7	.....	.....	15	Disco Island	E.	9	Sand and shells, at midnight, (land rocky and high.)
8	.....	.....	60	Savage Islands	E.S.E.	72	No ground.
9	63 22 15	53 45	34	Outermost N. Bay Isles.	S.	1½	Sand, (at an iceberg aground near islands.)
14	.....	.....	100	Whale Fish Island	E.	1½	No ground, (close to the S. entrance of the harbour.)
16	70 27 15	54 51	34	Waygatt Isle	S.W.	1	Stones, (at an iceberg aground.)
23	70 44	.....	26 to 16	Four Island Point	20′ N.	2 to 1	Stones, (ship drifted from 26 to 15 fms.
24	70 44	.....	7	8′ East of Four Island Point	E.	8	Rocky, (ship was driven in 16 feet, 50 yards from the shore.)
26	70 45	54 22	27	Land North East Bay	S.	½	Rocky, (land in Jacob's or N.E. Bay on the S. side.)
29	70 50	54 25	160	In North East Bay	.....	6	Mud, (midnight, near the middle.)
,,	70 54	54 00	200	Ditto Ditto	.....	4	No ground, (ship higher up the Bay.)
July 3	71 30	56 02	120	Black Hook	E.	10	No ground, (near land deep.)
,,	71 33	56 40	70	Black Hook	E. by S.	28	Mud, (water deep near the shore.)
5	73 10	.....	100	Opporsiwiek	E.	10	No ground, (water deep near the land)
,,	73 12	.....	80	Ditto	E.	3	No ground, (ditto ditto)
7	74 03	58 59	85	Three I. of Baffin	E.	45	Sand and gravel, (a bank 15 leagues from the land.)
9	74 03	57 33	180	Within Three I.	W	2	Mud, (water deepest in the bay, inside of three isles.)
16	74 31	58 40	60	Three Isles	E. by S.	48	Sand, (bank.)
,,	74 40	57 40	160	Ditto	E.S.E.	21	No ground, (inside of the bank.)
17	74 43	59 00	230	Devil's Thumb	E.	23	Mud, (inside of the bank.)
19	74 50	59 13	230	Horse's Head	E.N.E.	15	Mud, (inside the bank.)
21	74 50	59 40	220	Red Head	N.E. by E.	12	Mud and stones, granite and gneiss.
24	75 25	60 36	356	Ditto	E.N.E.	12	Mud, (water deepest near the land, and the mud softer.)
25	75 26	60 32	356	Sabine Isle	E. by N.	6	Mud,
,,	75 27	60 39	270	Ditto	E.	10	Mud,
,,	75 27	60 45	185	Ditto	E. ¼ S.	12	Mud,

The ship drifted with the ice, and the water became shoaler as she increased the distance from the land.

TABLE of SOUNDINGS obtained in Baffin's Bay.

Date	Latitude N.	Longitude W.	Depth of Water	Nearest Land seen	True Bearing	Distance in Miles	Nature of the Soundings and Remarks
	° ′ ″	° ′ ″	Fathoms				
July 27	75 28	60 30	314	Melville's Monument.	E.N.E.	9	Mud, (Melville Bay.)
31	75 33	61 22	380	Thom's Isle.	E.	3½	Mud and one stone granite, (water deepest near the land.)
,,	75 34	61 20	400	Ditto.	E.	3	Mud and stone, (water deepest near the land.)
Aug. 2	75 51 35	62 59 41	420	Cape Morris.	N.E.	10	Soft mud, (at temp. 29½ when brought up.)
4	75 58 26	64 37 21	250	Cape Melville.	N.E.	12	Soft mud and stones.
8	75 54 56	65 32 20	101	Cape Melville.	E. by S.	15	Mud and small stones, (land high.)
10	75 54 58	65 22 21	100	Bushnan's Isle	E.N.E.	6	Mud and sand, (outside of Prince Regent's Bay.)
11	75 53 00	65 4 0	150	Ditto	E.S.E.	8	Gravel.
13	75 54 15	65 52 0	455	Pr. Regent's Bay	E. to N.	6	Very soft mud, (deep water in the Bay.)
16	75 56 48 to 75 54 24	66 24 to 67 15	40 to 57	Off Cape York.	S.E.	4 to 5	Mud, stones, and shells, at each cast near and off the Cape, on a bank or reef.
17	75 54 to 76 12	67 15 to 69 55	35 to 70	Crimson Cliffs.	S.E.	4	Stones and shells—Continuation of the reef, on which were many icebergs.
19	76 18	72 00	360	Cary's Islands.	N.W.byN.		
,,	76 28 28	73 19 42	350	Ditto	N.	.....	Mud.
,,	76 35	74 00	295	Ditto	N.E.		
,,	76 54	74 21	192	Cape Saumarez.	E.	30	Grey mud and chocolate clay and worms, with sand, (this was the furthest north,)
20	76 46 16	73 21 42	240	Off Cape Clarence	N.	30	Mud.
21	76 32 46	76 54 48	110	Off Jones' Sound	N.W.	20	Stones and broken shells.
22	76 32 45	77 04 6	100	Ditto	N.N.W.	10	Stones and shells, (edge of a bank.)
23	76 36 51	77 04	98	Cape Lindsay	W.	8	Gravel, (edge of a bank.)
24	76 15 05 to 76 36 0	78 30	81 to 101 & 200	Off Cape Leopold	W.	9	Gravel, and above 10 fa. mud, (bank.)
25	76 10 0	78 30	57 to 95	.....	.....	12	Same bank,
26	76 04 0	78 28	50 to 76	Off Cape Cockburn	W.	12	Ditto
27	75 40	77 08	65 to 100	Ditto	N.W.	14	Ditto
							Sand, shells, gravel, coral, and above 100 fa. mud.
28	75 27 0	77 51	180 to 240 & 209	Cape Cunningham	W.	12	Mud and stones.
29	74 58 21	78 01 26	180 to 202 & 245	Ditto	N.N.W.	14	Mud and stones.

TABLE of SOUNDINGS obtained in Baffin's Bay—*(continued.)*

Date	Latitude N.	Longitude W.	Depths of Water	Nearest Land seen	True Bearing	Distance in Miles	Nature of the Soundings and Remarks
	° ′ ″	° ′ ″	Fathoms.				
Aug. 30	74 19 30	78 43 58	210	Cape Charlotte	W.	16	Mud, (north of Lancaster Bay.)
31	74 08 0	80 0 0	674	Mouth of Lancaster Bay	W.		Mud, (temp. 29½ when taken up,) with rounded gravel of quartz rock.
,,	74 09 0	81 12 0	650	Lancaster Bay			Mud-worms, (depth uncertain, but not more.)
Sept. 1	73 39 0	77 08	1000	Possession Bay	S.	6	Soft mud, with some worms in it.
,,	73 35 0	77 10	450	Ditto	S. by E.	2	Gravel stones, and two small living shrimps. The gravel consists of fragments of granite, gneiss, and quartz rock.
5	72 37 16	74 13 42	120	Cape M'Culloch	S.W.	17	Mud.
6	72 22 52	73 06 30	1050	Cape Coutts	S.W. by S.	21	Mud, coarse sand, and small stones, (temp. mud 28½.) The stones are fragments of grey secondary limestone.
7	72 16 42	71 46 30	1005	Cape Cargenholm	S.S.W.	24	Soft mud.
9	71 22 47	68 26	100	Cape Adair	W.	11	Sand.
9	71 10 0	68 20	90 to 51	Cape Eglinton	W.	5	Sand.
			38 to 131			4	Sand and shells.
			138			12	Stones.
10	70 40 00	67 56 00	38 to 145	Off and on Agnes' Mon.	S. to W.	2, 4, 5	Fine sand and stones. The stones are granite, gneiss, and graywacke schist.
11	70 34 30	67 46 15	90 to 95	Bute Isle	S.W.	6	Olive-brown clay.
12	70 42 00	64 37 00	290	.....	.....	.....	Rocky, no land in sight—Centre of Davis' Strait.
14	70 19 20	65 30 00	570	.....	.....	.....	Mud.
15	69 25 0	64 42 00	40 to 35	Cape Kater	W.	4	Sand, small stones, and broken shells—Isabella Bank.
			20 casts at 29				
			35 to 100				
16	69 05 0	64 48 00	26 to 35	Cape Bisson	W.	4	Sand and shells—Alexander's Bank.
17	68 07 0	63 00 00	180	Cape Broughton	S.W.	10	Mud.
18	67 27 6	61 09 00	1070	Cape Searle	S.W.	9	Reddish mud and Grey Limestone.
19	66 58 28	60 30 00	687	Dyer's Cape	S.W. by S.	15	Reddish mud.
20	66 44 09	59 20 00	400	No Land in sight	.....	.....	Mud.
21	66 56 0	56 18 00	48 to 56	Queen Ann's Cape	N.E.	.....	Rocky.

TABLE of SOUNDINGS obtained in Baffin's Bay—*(continued.)*

Date	Latitude N.	Longitude W.	Depth of Water	Nearest Land seen	True Bearing	Distance in Miles.	Nature of the Soundings and Remarks.
	° ′ ″	° ′ ″	Fathoms				
Sept. 23	67 00	57 46 15	290	Mount Raleigh	W.	.....	Mud.
26	65 54	54 35 00	370	.....	.....	....	Yellowish brown clay, with very fine sand.
28	65 05	60 42 00	156	.....	.....	.....	Stones.
29	65 54	61 11	100	.....	.....	.....	Rocky.
30	64 10	63 05	80	.....	.....	.....	Stones.
2	.....	.....	650	Resolution	S.W.	18	Fragments, scarcely rounded, of gneiss, and hornblende schist; with calcareous brown clay containing serpulæ, corallines, shrimps, and fragments of shells.

CRIMSON-COLOURED SNOW,

AND

METEORIC IRON.

For the following information, respecting two of the most interesting subjects in natural history which were observed in the voyage of which the narrative has preceded, I am indebted to the kindness of Dr. Wollaston. Of the accuracy and the extent of his knowledge it does not become me to speak, as they have long acquired for him a reputation, to which even the praise of those who are accomplished judges of his acquirements can add nothing. I shall make no apology for giving in his own words, that which could in no other way be so well communicated.

" With respect to the exact origin of that substance which gives red-
" ness to the snow, I apprehend we may not be able to give a decided
" opinion, for want of a sufficient knowledge of the productions of
" those regions in which it was found; but, from all the circumstances
" of its appearance, and of the substances which accompany it, I am
" strongly inclined to think it to be of vegetable origin. The red
" matter itself consists of minute globules from $\frac{1}{1000}$ to $\frac{1}{5000}$ of an
" inch in diameter; I believe their coat to be colourless, and that the
" redness belongs wholly to the contents, which seem to be of an

" oily nature and not soluble in water, but soluble in rectified spirits " of wine; when the globules are highly magnified, and seen with " sufficient light, they appear internally subdivided into about 8 or 10 " cells. They bear to be dried by the heat of boiling water, without " loss of colour. By destructive distillation, they yield a fœtid oil, " accompanied with ammonia, which might lead to the supposition " that they are of animal origin; but, since the seeds of various " plants also yield this product, and since the leaves of Fuci also " yield ammonia by distillation, I do not discover any thing in the " globules themselves which shews distinctly from what source they " were derived. I find, however, along with them, a small portion of " a cellular substance, which not only has these globules adherent to its " surface, but also contained in its interior; and this substance, which " I must therefore consider as of the same origin with them, appears " by its mode of burning to be decidedly vegetable, as I know of no " animal substance which so instantly burns away to a white ash, as " soon as it is heated to redness.

" The first conception I formed as to their nature was, that they " might be the spawn of a minute species of shrimp, which is known to " abound in those seas, and which might be devoured by the myriads " of water-fowl observed there, and voided with their dung; but, in that " case, they should undoubtedly be found mixed with the exuviæ of " those animals, which is not the fact; but they are found accompanied " solely by vegetable substances, in one of which they are actually " contained.

" If they are from the sea, there seems no limit to the quantity that " may be carried to land, by a continued and violent wind; no limit " to the period during which they may have accumulated, since they

" would remain from year to year, undiminished by the processes of " thawing and evaporation, which remove the snow with which they " are mixed.

" I regret that the scantiness of our information does not enable us " to come to any satisfactory conclusion, and can only hope that " future navigators may have an opportunity of collecting materials " to elucidate so curious a phenomenon."

IRON, FOUND IN LAT. 76° 12′ N., LONG. 53° W.

" With respect to the iron, of which you obligingly gave me a " specimen, it appears to differ in no respect from those masses of " which so many have now been found on various parts of the surface " of the earth; and which, in some few instances from tradition, and " in all from the analysis, appear to be of meteoric origin. They all " contain nickel, and this contains about the usual proportion of that " metal, which I estimate between three and four per cent., as inferred " from the quantity of crystallized sulphate of nickel which I obtained " from it; but, though I can thus speak with decision as to the " presence of a considerable quantity of nickel, I cannot undertake to " pronounce with accuracy upon proportions deduced from so small a " fragment as could be spared for this examination."

LATITUDES AND LONGITUDES OF PLACES.

	Latitude. °	′	Longitude. °	′
Adair, Cape	71	24	70	00
Agnes Monument—Rock	70	37	67	30
Agnew, Cape	71	24	71	45
Alexander, Cape	77	43	75	30
,, Bank	69	9	65	00
Allison Bay	74	40	57	56
Antrobus, Cape	71	57	73	50
Arabella Rock	76	35	70	34
Ardrossan Bay	70	37	68	40
Aston, Cape	70	10	65	25
Athol, Cape	76	23	69	41
Baffin's Islands	74	41	57	25
Banks' Bay	74	46	76	08
Barnard's Mountains	75	55	31	00
Barrow's Bay	73	40	83	45
Bathurst Bay	73	33	76	24
Beatrice, Cape	74	32	80	30
Bell's Isle	71	27	72	00
Beverly Cliffs	75	40	67	30

	Latitude. °	′	Longitude. °	′
Bisson, Cape	69	10	65	20
Black Hook, Cape	71	27	55	31
Booth's Sound	76	49	70	50
Borthwick	65	54	61	30
Bowen, Cape	72	25	74	40
Brodie Bay	68	00	64	5
Broughton, Cape	67	47	63	30
Browne's Islands	75	29	60	09
Bruce Bay	70	28	67	32
Bushnan's Isle	76	04	65	26
Bute Island	70	26	67	30
Byam Martin, Cape	73	33	77	10
Caledon, Cape	76	16	79	22
Campbell, Cape	64	06	65	12
Cargenholme, Cape	71	32	72	36
Carey's Islands	76	49	73	10
Catherine's Bay	73	30	81	50
Charlotte, Cape	74	32	79	30
Charles' Island	63	00	64	50
Chidley, Cape	68	37	53	33
Christian, Cape	70	35	67	37
Clarence, Cape	76	45	77	45
Clephane, Cape	65	54	61	0
Clyde, River	70	21	67	30
Cobourg Bay	75	35	78	40
Cockburn, Cape	74	49	73	45

	Latitude. °	′	Longitude. °	′
Coquin Sound	53	00	65	38
Coutts, Cape	72	00	74	10
,, Inlet	71	58	74	12
Cranstown, Cape	71	15	54	20
Crimson Cliffs, (Beverly)	76	00	68	00
Croker's Mountains	74	08	84	00
Cumberland Strait				
Cunningham, Cape	74	40	76	02
Dacre's Cape	65	36	61	50
Dalrymple Rock	76	28	70	42
Darkhead, Cape	72	10	56	00
Desolation, Cape			49	15
Devil's Thumb	74	16	57	56
Disco, N. End	70	12	59	12
,, S. End	69	11	56	30
Duck Islands	68	49	53	42
Dudley Digges, Cape	76	05	68	54
Duneira Bay	75	27	53	30
Durham, Cape	65	59	61	54
Dyer's Cape	66	42	61	06
Edward's Bay	76	38	78	30
Eglinton, Cape	70	49	68	34
Elizabeth's Bay	73	30	80	00
Enderby, Cape	63	45	65	30
Exeter Bay	66	30	61	00

	Latitude. °	′	Longitude. °	′
Fanshawe, Cape	73	40	76	06
Four-Island Point	70	46	53	03
Frances, Cape	76	28	70	25
Fry, Cape	65	06	63	25
Gilbert Sound	67	42	53	20
Graham Moore, Cape	72	54	75	28
Hackluit Island				
Haig's Island	70	29	67	45
Hamilton's Bay	71	25	70	40
Hardwicke Cape	76	30	78	58
Hathorn, Cape	71	30	72	20
Hay, Cape	73	35	80	35
Hope's Monument	72	26	80	45
Hewell, Cape	70	27	67	18
Hingston Bay	73	48	57	20
Hoare Bay	65	18	63	30
Home Bay	68	40	64	50
Hooper, Cape	68	06	64	36
Hoppner, Cape	76	56	70	48
Horse's Head	74	49	58	15
Horsburgh, Cape	74	35	73	45
Hurd, Cape	77	49	78	48
Hynd's Bay	66	33	61	0

	Latitude. °	′	Longitude. °	′
Inglis Bay	65	47	61	50
Inmallick	76	0	66	46
Iron Mountains	76	10	65	24
Isabella, Cape	77	48	77	00
Isabella's Bank	69	30	65	00
Jacob's Bay, (or N.E. Bay)	71	00	53	00
Jameson, Cape	71	45	73	30
Jones's Sound	76	20	78	10
Kater, Cape	69	39	65	15
Lady Ann Bay	75	54	80	00
Lancaster Sound	74	19	83	50
Lawson, Cape	71	45	55	36
Leifle Bay, (or Love Bay, or God Haaven)	69	10	54	40
Leopold, Cape	75	40	18	12
Lewis, Cape	75	31	59	00
Lindsay, Cape	76	06	79	24
Loch Ryan	65	06	63	45
Mackintosh, Cape	67	00	62	00
Martin Mountains	73	25	80	00
Mary Ann Island	71	25	71	35
M'Culloch, Cape	72	13	74	14
M'Douall, Cape	71	24	70	48
M'Leay, Cape	70	15	66	25

	Latitude. °	′	Longitude. °	′
Meikleham, Cape	65	18	62	50
Melville Bay	Lat. 76° 5′ to 75° 12′;		Long. 60° to 64°	
Melville, Cape	76	05	64°	30′
Melville's Monument	75	33	59	18
Merchants' Bay	67	38	64	00
Miller's Island	65	12	63	18
Morris, Cape	76	09	62	08
Mouat, Cape	77	29	78	00
Murdoch, Cape	76	08	61	28
Nius, Cape	63	38	65	48
North Ayr	70	00	72	00
North Bay Islands	68	19	53	47
North Galloway	71	00	73	00
Operniwick	73	25	57	26
Osborne, Cape	74	24	81	42
Paget, Cape	70	10	75	55
Parry, Cape	77	06	71	23
Petowack	76	11	69	00
Possession Bay	73	33	77	28
Pond's Bay	72	38	75	00
Prince Regent's Bay ; Lat. 76° 10′ to 75° 45′			Long. 64° 60′ to 66	40
Prince William's Land	72	30	73	00
Princess Charlotte's Monument	75	36	78	28

	Latitude. °	′	Longitude. °	′
Queen Ann's Cape	66	24	53	20
Raleigh Mount	61	14	61	30
Red Head	74	55	53	44
Reid's Bay	66	48	61	40
Robertson, Cape	77	24	71	36
Raper, Cape	69	54	65	10
Rosamond, Cape	74	10	83	17
Sabine Islands	75	29	60	09
Salmon Islands	70	11	65	30
Savage Islands, (or Wild Islands)	67	44	53	40
Saumarez, Cape	77	30	73	52
Saunderson's Tower	64	50	63	44
Sowallick (or Iron) Mountains	76	10	65	04
Scott's Bay	71	10	70	00
Shackleton, Cape	73	36	57	15
Sheffield Bay	65	30	62	30
Siddon, Cape	75	17	59	00
Skene's Island	76	07	63	24
Smith's Sound	77	55	76	15
South East Bay	69	00	50	00
Stair, Cape	77	43	70	55
St. Clair, Cape	64	15	64	55
Suffkowallick	76	00	57	00
Sugar-Loaf Island	74	02	57	30

	Latitude. °	′	Longitude. °	′
Thom Islands	75	40	60	00
Three Islands (of Baffin)	74	01	57	25
Unknown Island	71	00	53	45
Walker, Cape	75	46	59	54
Walsingham, Cape	66	00	60	50
Walter Bathurst, Cape	73	03	76	22
Warrender, Cape	74	19	32	30
Waygatt Island, (N.E. side)	70	24		
,, Strait (N. entrance)	70	26		
Whale Islands	68	57	53	30
Whale Sound	77	15	71	20
White, Cape	76	35	70	36
Wilcox Point	74	10	57	45
Wollaston Island	69	25	65	20
Wolstenholme Island	76	24	70	22
Wolstenholme Sound	76	29	70	00
Women's Islands	72	45	56	40
York, Cape	75	55	65	38

An ACCOUNT *of the* GOING *of the* CHRONOMETERS *which were embarked on board* H. M. S. ISABELLA *and* ALEXANDER, *during a Voyage of Discovery to the Arctic Regions*, 1818.

ON the 14th of April, 1818, seven chronometers were embarked on board H. M. S. Isabella, for the purpose of determining her longitude at sea, of which the following is an account:—

Earnshaw's, No.	815	Furnished by the Admiralty.
Arnold's „	369	
Ditto „	2,151	
Earnshaw's „	1,024	The property of Captain Ross.
Arnold „	25	The property of Henry Browne, Esq.
Ditto „	523	Under charge of Captain Sabine.
Parkinson & Frodsham „	228	Sent on board by the makers.

The five box chronometers were suspended by steel spiral springs from a fore and aft piece fixed to the beams in the cabin. This invention was intended to take off the effect of shocks which the ship might receive among the ice; and a piece of baize, in the form of a wrapper long enough to reach the deck, was attached to each of the springs, and which being tied round the box, and left loose to trail on

the cabin-floor, counteracted the momentum, occasioned by the ship's motion.

The rates of the two box chronometers, belonging to the Admiralty, were obtained by Henry Browne, Esq., after a trial of two months, with his excellent clock; but No. 25 and 523 of Arnold, had not the advantage of being tried for so long a period. No. 1,024 of Earnshaw, was in the hands of the maker three months to obtain its rate.

No. 228 of Messrs. Parkinson and Frodsham, was sent by its maker to Mr. Browne's, about a fortnight before its embarkation, subject to the following remark:—"That it might be expected to accelerate from 4 to 10 on the first three or four months; but this propensity once disposed of, its rate would suffer no material alteration. No. 2,151 had only been tried a few days. The charge of winding up these chronometers was intrusted to Captain Sabine; and the sentinel at the cabin-door had orders to call him for that purpose at 9 o'clock; and this sentinel could not be relieved by the next, at noon, unless he could report that the chronometers were wound up, (or said to be so) by Captain Sabine. A few days, however, after we had sailed, 2,151 was unfortunately forgotten to be wound up; and as No. 523, which was worn in Captain Sabine's pocket, altered very much by the effect of heat and cold, it was rejected by me in the calculations for longitude; and No. 2,151 having met with an additional accident in falling out of my hands, was also rejected for the voyage, and the watches were made use of for observing.

On the 14th of April, the corrections to mean time at Greenwich

for the five box chronometers from which the longitude is laid down, were as follows :—

No.	815	fast	0°	58′	7″	gaining	0″	54‴ daily
,,	369	,,	7	51		,,	7	35 ,,
,,	228	,,	0	45		,,	3	,,
,,	1,024	,,	0	59		,,	1	,,
,,	25	,,		51		,,	2	,,

Nos. 2,151 and 523 are left out, as they were not used in my calculations.

On the 1st of May, by observations taken at Gardie-house, on the Island of Brassa, in Shetland, its longitude was determined as follows :—

By No.	815	1°	15′	48″	West
,,	369	1	09	50	,,
,,	228	1	33	34	,,
,,	1,024	1	16	22	,,
,,	25	1	13	45	,,
Means		1	15	52	West.

being only 22′ further west than my observations in 1814; and allowing Nos. 228 and 25 to balance each other, I take 1° 15′ to be the longitude of Gardie-house.

On the 13th of May, the longitude was determined by lunar observation, and was found to be—

	°	′	″	
Longitude, by means of five distances of the Sun and Moon, taken by Captain Ross....	21	08	30	W.
By means of five box chronometers....	21	8	15	W.
Diff.			15	

On the 14th May,

	°	′	″
Longitude, by means of three distances of the Sun and Moon, taken by Captain Ross..	23	02	0
„ By means of five box chronometers....	23	01	22½
Diff.			37½

On the 27th May,

	°	′	″
Longitude, by means of five distances of the Sun and Moon	52	10	00
Longitude, by means of five chronometers	52	12	00
Diff.		1	00

On the 9th of June, the Isabella and Alexander being moored to an iceberg off North Bay Islands, on the east side of Davis' Strait, the outermost island bore W. by S. three miles distant, and the nearest S. by W. 1½ mile by compass. The latitude by observation was determined to be 68° 22′ 35″ North.

	°	′	″	
Longitude, by means of ten observations, taken by Captain Ross on the iceberg	53	47	53	W.

	° ′ ″
Longitude, by means of observations, taken by Lieut. Parry on the iceberg	53 42 00
Longitude, by means of all the officers of both ships..	53 45 11

The longitude, by the means of the chronometers, did not materially differ from that obtained by so many lunar observations, taken under such favourable circumstances; but nevertheless, they were found considerably to differ from each other, and were accordingly regulated as follows:—

The longitude, by means of my observations, being	53° 47′ 53″	W.
And by the means of all the officers of both ships..	53 45 11	W.
I take for my true longitude, the means	53 46 32	W.

At the same time, No. 1024, gave longitude ..... 53° 46′ 52″ W.

I, therefore, consider that its rate has remained unchanged, and is therefore confirmed at + one second per day, gaining on Greenwich mean time, in like manner—

	Were found to be fast of Greenwich	Having gained daily	A new rate therefore given them of gaining daily
No. 815	— 1″ 39‴	— 1″ 0‴	= 0″ 54‴
369	—12 18	— 5 5	= 7 35
223	— 9 24	—12 5	= 3′
25	— 1 10½	— 4	= 2″

These rates commenced on the first of June, and on the 21st of that month, by lunar observations, no material alteration was found to have

taken place; but, between that time and the 18th of September, no observations which could be depended on were obtained. Between the 18th and 24th of September, I had the following observations—

18 September, the	☽	from Aldebaran, E. of her	7′	0″ W.
21 ditto	☽	from Pollux	5	30 W.
21 ditto	☽	ditto	6	00 W.
23 ditto	☽	from ☉ E. means of 3 sets	4	55 E.
24 ditto	☽	from Aldebaran	4	15 E.

The means of observations W. of the chronometer, being	6°	1″
And those E. of the chronometers being	4	35
The mean was found to be	5	22½

or 21½″ slow of Greenwich time.

By these observations it must appear evident, that any error arising from the above difference, could not be perceptible on a chart, where the degrees of longitude amount only to fifteen miles; and therefore the situation of the land deduced from the ship's track must be correctly laid down; but although the means of the chronometers were so satisfactory, their differences from each other were so considerable that it was found necessary to give them the following new rates, *viz.*:

No.	815	Gaining	3″	5‴	Daily
	369	„	2		„
	228	„	10		„
	1,024	Losing	3		„
	25	Gaining	9		

On the 3d of November, the ships having returned to Brassa Sound, allowing 21½ seconds of time, or 5½ miles. The longitude was found to be as follows:

No.	815	1° 15′ 05″	W.
	369	0 46 20	W.
	228	1 08 43	W.
	1024	0 50 58	W.
	25	1 20 46	W.
Means		1 08 52½	
		1 13 53	

Ditto, rejecting 369 which had gone irregularly for some days.

The lunar observations inserted in the foregoing abstracts, are only for the purpose of shewing how the chronometers were regulated. The true longitude both by lunar observation and chronometer will be found in the engraved tables, where the latitudes, variation, and magnetic dip are also to be found, as well as the meteorological observations. The latitudes and longitudes of the alphabetical list of places in Baffin's Bay and Davis' Strait, were carefully taken from the chart which was constructed from the most approved observations made in both ships, by Mr. ohn Bushnan, who, under my inspection, drew the said chart, which has been deposited at the Hydrographer's Office in the Admiralty.

OBSERVATIONS

ON

THE DIP SECTOR.

THE following Observations, taken by the Dip Sector, were furnished by Mr. J. C. Ross; but the use of this instrument was totally suspended in Baffin's Bay, by the inequality of the dip, and refraction on the natural horizon, from which cause no result could be obtained by observing with it in the presence of ice. After leaving the ice, the weather was never favourable for any observations to be made with this valuable instrument.

May 13. Lat. 58° N. Long. 20° W. Light airs, and cloudy temperature of the air 52½; water at the surface 49°; barometer 29° 45′; hygrometer 2° 83′.

Points of the horizon observed, east and west clear, and well defined.

INDEX UPPERMOST.				INDEX REVERSED.			
	°	′	″		°	′	″
Ross	2	46	15	Sabine	3	2	15
Ross	2	46	15	Ross	3	2	18
Ross	2	46	15	Ross	3	2	20
Ross	2	45	40	Sabine	3	2	20
Mean	2	46	06	Mean	3	2	18

Carried forward

Brought up

Mean	2	46	06	Mean	3	2 18
	3	2	18			
4)	16	12				
	4	3	Dip observed.			
	4	11	Tabular Dip for 18 feet from Rio's Tables.			
Diff.	—	8				

Points Obs. N.W. and S.E. In the N.W. the horizon was clear and well defined; in the S.E. the clouds descending beneath, made an occasional glare, but still well defined.

INDEX UPPERMOST.				INDEX INVERTED.			
	°	′	″		°	′	″
Sabine	2	43	50	Ross	3	3	0
Sabine	2	43	50	Ross	3	2	50
Ross	2	43	50	Sabine	3	3	30
Ross	2	43	50	Sabine	3	2	50
Mean	2	43	50	Mean	3	3	$2\frac{1}{2}$
	3	3	$2\frac{1}{2}$				
4)	19	12	$\frac{1}{2}$				
	4	48	Dip observed.				
	4	11	Tabular Dip.				
Diff.	+	37					

May 15. Lat. 57° N. Long. 25° W. 1ʰ 30ᵐ P.M. Light airs N.N.W. cloudy weather; water at the surface 47½°; air 47°; barometer 29° 3′; hygrometer 3° 76′; sea smooth. Points observed N.E. and S.W. In the N.E. sky clear, horizon dark, and well defined. In the S.W. the clouds near the horizon dark, the horizon light, and not well defined.

INDEX UPPERMOST.	°	′	″
Sabine	2	44	55
Sabine	2	45	20
Ross	2	44	10
Sabine	2	44	45
Ross	2	44	10
Ross	2	44	25
Mean	2	44	37½
	3	2	4½
	4)	17	27
	4	21¾	Dip observed.
	4	12½	Tabular Dip for 18¼ feet.
Diff.	+	9¼	

INDEX REVERSED.	°	′	″
Ross	3	2	30
Sabine	3	2	12
Ross	3	1	30
Ross	3	2	45
Sabine	3	1	30
Sabine	3	2	0
Mean	3	2	4½

May 22. Lat. 57° N. Long. 42° W. At noon; wind N.W., a good breeze, day cloudy; water at the surface 38½°; air 39°; barometer

29° 77′; hygrometer 3° 78′. Points observed north and south, both of them clear and well defined.

INDEX UPPERMOST.	°	′	″
Sabine	2	45	35
Ross	2	45	43
Sabine	2	45	30
	2	45	36
	3	2	$40\frac{1}{3}$
4)	17	4	$\frac{1}{3}$
	4	16	$\frac{1}{12}$ Dip observed.
	4	14	Tabular Dip $18\frac{1}{3}$ feet.
Diff.	+	2	$\frac{1}{12}$

INDEX REVERSED.	°	′	″
Sabine	3	2	37
Ross	3	2	44
Sabine	3	2	40
	3	2	$40\frac{1}{3}$

May 31. Lat. 63° 53′ N. long. 55° 03′ W. At 1 P.M light winds, N.b.E. day cloudy; air 29°; water 32°; barometer 29° 62′; hygrometer 3° 95′; the horizons uncertain and changing; the sky and sea alike in colour; and the line of horizon, at times, scarcely perceptible.

N. and S. points observed by Mr. J. C. Ross.

INDEX UPPERMOST.	INDEX REVERSED.
° ′ ″	° ′ ″
2 44 05	3 2 30
2 43 55	3 2 20
2 44 0	3 2 10
2 44 0	3 2 20
2 2 20	
4) 18 20	
4 35 Dip observed.	
- 4 14 Dip for 18½ feet.	
Diff. + 21	

N.N.E. and S.S.W. points observed by Captain Sabine.

INDEX UPPERMOST.	INDEX REVERSED.
° ′ ″	° ′ ″
2 43 18	3 2 45
2 43 12	3 3 35
2 43 20	3 3 50
2 43 16⅔	3 3 40
3 3 27½	3 3 27½
20 10 8	
5 2 7 Dip observed.	
4 14 0 Dip for 18½ feet.	
Diff. + 48 7	

June 2. Lat. 63° 41′ N. long. 55° 42′ W. At 8ʰ 30ᵐ P.M., light breezes from E.S.E.; sea very smooth; a great quantity of ice in sight; water at the surface 31°; air 33°; barometer 29° 48′; hygrometer 5° 90′.

INDEX UPPERMOST.	°	′	″
Sabine	2	45	53
Ross	2	46	5
Ross	2	45	58
	2	45	59
	3	3	54
4)	17	55	
	4	28	75 Dip observed.
	4	14	Dip for 18½ feet.
Diff.	+	14	75

INDEX REVERSED.	°	′	″
Sabine	3	3	50
Ross	3	3	58
	3	3	54

August 29. Moderate and cloudy. Points observed N.E. and S.W. by compass; the horizons not well defined.

By Mr. J. C. Ross only.

INDEX INVERTED.			INDEX UPPERMOST.		
°	′	″	°	′	″
2	59	45	2	46	50
2	59	55	2	46	59
3	0	15	2	46	41
2	59	58	2	46	50
2	46	50			
4)	13	8			
	3	17	Dip observed.		
	4	11	Dip for 18 feet.		
Diff.	—	54			

On the 30th of August, lat. 74° 16′ N, long. 81° W.; a pleasant breeze from W.N.W. (true); horizon clear, and well defined; one or two icebergs in sight; water at the surface 36°; air 38°; barometer 29 . 72; hygrometer 8 . 10; 18 feet, height of the eye.

INDEX UPPERMOST.	°	′	″	INDEX INVERTED.	°	′	″
Sabine	2	48	30	Ross	3	2	35
Ross	2	47	50	Ross	3	2	18
Sabine	2	48	35	Sabine	3	3	25
Ross	2	47	50	Sabine	3	1	45
Sabine	2	47	32	Sabine	3	2	35
Ross	2	48	20	Ross	3	2	20
Sabine	2	48	10	Ross	3	2	40
Ross	2	48	45	Ross	3	2	30
	2	48	11. 5		3	2	31
					2	48	11. 5
					4)	14	19. 5
				Dip observed		3	34. 9
				Dip for 18 feet		4	11
				Difference		—	36. 1

OBSERVATIONS ON THE PENDULUM.

THE following Observations were furnished by Mr. J. C. Ross, who was one of the Officers employed at Waygatt Island on that service.

ACCOUNT of the going of the PENDULUM CLOCK, No. 2, intended for the Northern Expedition, as compared with Mr. Browne's Clock, by Cumming, April, 1818.

Date	Time	With Cumming's	Difference 1	Rate per diem 2	Daily rate from 24 hours 3	Daily rate corrected 4	Temperature	Arc of vibration	Barometer	REMARKS.
		h. ′ ″	+ ″	+ ″						
Mar. 30	3 P.M.	Sl. 3 4 46,1			.....	.....	56,5	1,76		
			=18,7	74,8						
	9 P.M.	3 4 27,4			.....	.....	53,5	1,77		Latitude 51° 31′ 8,5″ N.
			=10	80						
	Midnight	3 4 17,4			.....	.....	52,25	1,77		Longitude 0° 8′ 30,6″ W.
			=31,7	84						
31	9 A.M.	3 3 45,7					51	1,85		Height above the sea 84 5 feet.
			=29,5	79	+82,3	+82,03				
	6 P.M.	3 3 16,2					51	1,85		
			=21,1	84,4						
	Midnight	3 2 55,1			.....	.....	51	1,85		
			=40,9	81,8						
April 1	Noon	3 2 14,2			81,9	81,63	51	1,8	30,24	
	6 P.M.	.....	41	82	.....	.....	53,4	1,8		
	Midnight	3 1 33,2	.....	.....	.....	.....	52,4	1,83		The columns of Rates 1 and 2, shew the daily rate as deduced from short and irregular intervals of time; 3 is the rate deduced from an interval of 24 hours, as compared with Cumming; 4 is the rate corrected for the rate of Cumming, and is the exact number of seconds which the Pendulum vibrates more than 86,400 in 24 hours of mean taken time.
2	6 A.M.	.....	40,8	81,6	.....	.....	51	1,86		
	Noon	3 0 52,4	.....	.....	80,9	80,63	52,75	1,86	30,21	
	6 P.M.	.....	40,1	80,2	.....	.....	52,5	1,86		
	Midnight	3 0 12,3	.....	.....	.....	.....	52,6	1,85		
3	6 A.M.	.....	41	82	.....	.....	50,6	1,85		
	Noon	2 59 31,3	.....	.....	81,9	81,63	52,4	1,85	30,36	
	6 P.M.	.....	40,9	81,8	.....	.....	53	1,85		
	Midnight	2 58 50,4	.....	.....	.....	.....	53,5	1,83		
4	6 A.M.	.....	40,8	81.6	.....	.....	50,6	1,85		
	Noon	2 58 9,6	.....	.....	80,8	80,53	52,5	1,85	30,30	
	6 P.M.	.....	40	80	.....	.....	52,5	1,85		
	Midnight	2 57 29,6	.....	.....	.....	.....	52,5	1,85		
5	6 A.M.	.....	41,5	83	.....	.....	50,5	1,86		
	Noon	2 56 48,1	.....	.....	81,7	81,40	51,5	1,86	30,09	
	6 P.M.	.....	40,2	80,4	.....	.....	52	1,86		
	Midnight	2 56 7,9	.....	.....	.....	.....	53	1,85		
6	6 A.M.	.....	41,4	82,8	.....	.....	52,5	1,85		
	Noon	2 55 26,5	....	.....	.....	.....	53,75	1,85	29,27	

ACCOUNT of the PENDULUM CLOCK, No. 2, as compared with the Chronometers, Earnshaw's 815, and Earnshaw's 1,024, at Gardie House, on the Island of Brassa, Shetland; April and May, 1818.

Date	By the Clock	By Earnshaw 815, gaining 0″,54	By Earnshaw 1,024, gaining 1″	Transits	Rate per diem 1	Daily Rate from 24 hours 2	Temperature	Arc of vibration	Barometer	Hygrometer	REMARKS.
	h. ′ ″	h. ′ ″	h. ′ ″		″						
April 30	6 19 10	7 58 52	7 59 1,25	.....	+119,6	.....	54,4	2,01	29,970	4,28	
	10 29 18,75	12 8 40	12 8 50	.....		.....	54,6	1,72	29,935	3,61	
	12 0 4	.....	.....	.....	115,07						
	5 7 10,5	18 46 0	18 46 10,5	.....		.....	52,3	1,835	29,842	4,06	Level examined, clock-case shut.
	9 56 34,25	23 35 0	23 35 10,5	.....	117,9	.....	54,75	1,8	29,776	3,89	
May 1	.....	24 3 12,5	24 3 23	⊙ obscured		+116,35					
	12 0 0	.....	.....	.....	116,28						
	1 42 52,5	3 21 0	3 21 10,75	.....		.....	52	1,8	29,719	3,65	The column of Rate marked 1, shews the daily rate as deduced from short and irregular intervals of time—2, shews the rate deduced from an interval of 24 hours nearly, as compared with 815.
	5 24 0	.....	.....	.....		.....	54	1,8	29,691	3,85	
	10 17 34	11 55 0	11 55 10,75	.....	116,26	.....	54,8	1,795	29,633	3,83	
	12 0 0	.....	.....	.....		.....	55,5	1,8	29,606	3,72	
	3 48 0	.....	.....	.....	115,9	.....	55	1,8	29,600	3,62	
	6 47 15	20 24 0	20 24 10,5	.....		.....	53,5	1,755	29,663	3,97	
	9 18 27	22 55 0	22 55 10,35	.....	114,43	.....	52,5	1,76	.....	4,01	
2	.....	24 3 5,4	24 3 15,65	⊙ obscured		+115,58					
	10 53 0	.....	.....	.....		.....	55,4	1,78	29,752	4,00	
	12 0 0	.....	.....	.....	115,52						
	3 4 0	.....	.....	.....		.....	56,8	1,8	29,818	3,79	
	7 36 16,5	9 12 0	9 12 10,25	.....		.....	57,0	1,8	29,866	3,41	Lat. 60° 0′ 40″ N.
	9 37 0	.....	.....	.....		.....	58,4	1,8	29,904	3,50	Long. 1 4 0 W.
	12 0 0	.....	.....	.....	113,52	.....	.....	.....	.....	.....	Height above high Water 19 feet.
	3 10 22,25	16 45 30	16 45 40,25	.....			55,5	1,8	29,904	3,64	
					+116,053	+115,965	55	1,8			

ACCOUNT of the going of the PENDULUM CLOCK, No. 2, at Hare Island, Latitude observed 70° 26′ 17″ North; Longitude by Chronometers 54° 51′ 49″ West.

Date	Time shewn by the Clock	Time by No. 815	Sun's Transit	Rate of Clock in the interval	Rate on 24 hours' mean time	Rate of No. 815	Arc of vibrations	Barometer	REMARKS
	h ′ ″	h ′ ″							
June 17	1 21 0	17 15 28	.....	.....	.....	.....	1,77	30,111	The clock having been going ten hours, the case was shut.
,,	9 54 0	.....	.....	.....	.....	.....	1,77	30,102	
18	11 48 35,5	3 41 56,1	Noon	.....	.....	.....	1,77	30,117	Level examined; found true.
,,	3 10 0	.....	.....	.....	.....	.....	1,77	30,110	
,,	6 40 0	.....	.....	.....	.....	.....	1,78	30,088	
				+166″,62	+153″,82	+1″,17			
,,	11 49 54	15 41 56,9	.....	.....	.....	.....	1,78	33,108	An accident happened to the Mountain Barometer, (which was the only one on shore,) in measuring the height of a mountain, and it was not repaired in time to continue the registering; but no alteration took place in those on board.
,,	7 50 0	.....	.....	.....	.....	.....	1,8		
19	11 51 22,12	3 42 10,12	Noon	.....	.....	.....	1,8		
,,	6 0 0	.....	.....	.....	.....	.....	1,8		
,,	12 0 0	.....	.....	+165″,25	+152″,45	+1″,95	1,76		Level examined, and required a slight re-adjustment.
20	11 57 7,37	3 42 24,87	Noon	.....	.....	.....	1,77		Height above the level of high water-mark forty feet.
,,	1 29 0	5 17 7	.....	.....	.....	.....	1,78		
				Mean..	+153″,135	+1″,56			

AURORA BOREALIS.

THE following observations were made by Lieutenant W. Robertson, whose attention was particularly directed to these phenomena, which were not seen until late on our homeward passage; and it is to be regretted that the ship never, while they were seen, was in a situation where the electrometer could be used. The observations are, however, not uninteresting, as they tend to establish that these phenomena are often very near the earth, and that they appear in every direction as well as in the north.

H. M. S. Isabella, at Sea, lat. 66° 30′ N. *long.* 59° W.

September 23, 1818, about ten in the evening, the Aurora Borealis was seen in the true south horizon; the horizon was first illuminated like the rising or setting of the moon behind a cloud, or rather like the illumination of the atmosphere caused by great fires; this extended four points of bearings; rays were soon after darted up perpendicularly in bundles to 20° altitude; the Aurora spread to S.E., without darting rays, and soon after disappeared; at midnight a very brilliant meteor darted from the zenith to the eastern horizon like a rocket, and was seen for 2″ or 3″; the evening was fine, with a light breeze from the westward, which shifted in the morning to the southward, blowing fresh, with hazy weather.

September 26., in lat. 65° 50′ N. long. 61° W., about nine in the evening, the Aurora Borealis was seen very brilliant in every point of bearing, shooting bundles of rays of unequal length to the zenith. This Aurora was first seen through a thick mist in the zenith; as the mist passed away, the Aurora increased in brilliancy, the stars shone bright; not a cloud to be seen. At eleven the Aurora became less brilliant, and the sky again obscured with mist; the horizon continued hazy, till two next morning, when the Aurora was again seen very brilliant in the zenith; weather again became foggy, the wind was light from northward, which shifted to S. by W.; moderate cloudy weather.

September 28. Lat. 65° N. long. 63°. At eleven p. m. observed the Aurora very brilliant, from S. by E. to S. by W. It first appeared from behind a cloud at the altitude of 5°, shining with a silvery light; shortly after darting up small bundles of rays to the altitude of 16°. There was no appearance of the Aurora in any other part of the heavens; weather calm and clear at first appearance; a breeze soon sprung up from west, which shifted to S. W. moderate weather.

September 29. Lat. 65° N. long. 63° W. At ten in the evening the Aurora was seen very brilliant from S. W. to S. E. true bearings, shooting rays to the altitude of 15°; in the morning of the 30th, the Aurora was spread all over the heavens. Strong breezes from westward with clear weather, continuing to blow fresh from that quarter to past noon.

October 1. Lat. 62° 30′ N. long. 63° W. At eight in the evening the Aurora was seen in the true S.S.W. to S.S.E.; at nine, the luminous appearance spread from S.W. round by the S.E. quarter to N.E. in an arched form, the centre of the arch 18° high, the luminous part of arch 3° broad; there was a very dark appearance under the arch, through which the stars appeared with the same glimmering light that they shone with through the luminous parts. Small bundles of sharp-pointed rays were shot perpendicular from all parts of the arch to the altitude of 40°. About ten the arch shifted more to the westward, and soon disappeared, fresh breezes from W.S.W.; true and clear star light; at four a. m. 2d. light winds S.W. continuing all day with hazy weather.

October 6. Lat. 60° N. long. 56° W. Strong gales and squally, with snow and sleet, observed the whole sky suddenly illuminated, which lasted five or six minutes, this might be Aurora in the zenith; wind N.N.W. moderating towards noon.

October 8. Lat. 59° N. long. 50° W. At eight in the evening, observed the Aurora very bright on the true east quarter, shooting beautiful rays in bundles from the horizon to the altitude of 60°; this was soon obscured by squalls of snow and sleet. From nine to twelve the Aurora was seen in every part of the heavens shooting streams of light in every direction, the most luminous; appearing from N. by W. to W. by N. true bearings; strong winds and squally, with sleet, from N.W. by N. true, increasing to a hard gale on the ninth at noon, continuing to blow hard to noon of the tenth, when it moderated.

October 17. Lat. 51° N. long. 25° W. At eight p. m. observed the Aurora to begin in two concentric arches, the greatest arch from true east to west, passing through the zenith, the smaller arch south of the large one at an altitude of 45°, shooting fine rays from all parts of the arches, but most brilliant from the western part. At half past eight, these arches disappeared, and another most brilliant one was seen north of the zenith, the centre passing through the pole star, the extremities touching the eastern and western horizons, emitting fine rays, having all the prismatic colours; this arch was soon broken, and the Aurora flitted about in beautiful coruscations in the north-western part of the heavens, shifting round to the

southward: the moon shone unclouded at the time, and the Aurora was sometimes seen passing her, eclipsing her in splendour. At 9^h. 30^m. the Aurora disappeared, the weather moderate at the time, with some light fleecy clouds in the sky, which had a dark appearance when passing under the Aurora. It blew hard from the westward in the morning, and had moderated towards evening; wind shifted to the southward next day with moderate weather.

REPORT

ON

COMPASSES, INSTRUMENTS, &c.

Kater's Azimuth Compass,

Was particularly useful in determining the variation when the ship was steady, or when azimuths could be taken on the ice or land, as it can be read off with great accuracy; but it requires to be carefully levelled with a spirit level. But it was also invaluable for obtaining the points of change and amount of deviation, and was always used for that purpose. Those on board the Isabella were both good, but the thread of one got out of order; the Alexander's were also equally good, and when carefully levelled, always agreed with the Isabella's.

Walker's Azimuth Compass,

Is certainly the best for azimuths when the ship has considerable motion; but its card being heavy, it ceased to traverse when the variation was 110°, and the dip. 86°.

Insulated Steering Compass, supplied by Jennings.

This instrument certainly answered the purpose for which it was intended, and completely obviated the effect of local attraction; but its card being heavy, and the needle short, and not very powerfully magnetized, it ceased to act when the variation was great.

Alexander's (of Leith) Steering Compass.

Is decidedly superior to all others, the card and needle being well proportioned, the friction being better counteracted by the ingenious manner of suspension; it is well adapted for either boat or ship, and if fitted as an azimuth compass cannot fail to excel, particularly when the ship has much motion; those we had on board the Isabella and Alexander traversed when all others had ceased to act.

Burt's Binnacle and Steering Compass.

This invention has several peculiar advantages, the facility with which it is lighted in stormy weather, and the small space it occupies are great advantages, the card of the compass on board the Isabella was however too large; and it was therefore the first which ceased to act, but this might be easily obviated by substituting lighter cards according to the weather.

Crow's Steering Compass.

This compass was powerfully magnetized, and continued to traverse nearest to Alexander's, but its card was also too heavy where the dip and variation are great. It is an excellent compass for other places.

Crow's Boat Compass.

This compass answered extremely well, and is very good when the boat has much motion, but we had very little opportunity of trying it; it ceased to traverse before the steering compass.

REPORTS ON VARIOUS INSTRUMENTS

SUPPLIED TO

HIS MAJESTY'S SHIPS ISABELLA AND ALEXANDER.

Transit Instruments, and Clock Pendulum.

THERE was no opportunity of using these instruments after leaving Waygatt Island.

Repeating Circle.

No use has been made of this instrument, as the time was always easily to be found with the sextant in the usual way.

Mr. Browne's Dipping Needle.

This instrument, which was made by Nairne, was a great acquisition to us, being the only one which could be depended on. It was tried at Shetland, during our stay there when outward-bound, and also on our return, and found to have continued without alteration

Lockwood's Dipping Needle.

This is an ingenious instrument, and has every motion; but, owing to the impossibility of knowing when the card on which it stands is on a level with the horizon, the results of our observations on it cannot be depended on. When the dip was above 80° it could not be kept in the meridian; and as it is made to read off only on one side, no correction can be made of whatever error it may have.

Jones's Dipping Needle.

This instrument was tried and no result could be obtained from it, owing to a mistake which had been made in marking its error; and this was not discovered until the last time we had an opportunity of using it. At this time, however, the observations on it exactly agreed with those made on Mr. Browne's, and I have no doubt but it is a good instrument.

Troughton's Dipping Needle.

We never got any result from this instrument which could be depended on.

Troughton's Whirling Horizon.

This instrument could not be depended on, even in the smoothest water; for besides its vibrations, the two reflected objects opened and closed above a diameter of the sun.

Baine's Patent Log.

This instrument performed extremely well, but from a defect in the materials with which it was made, and which we were not able to replace, we could not use it, after it was damaged, but I am of opinion that this instrument would be of great use, particularly to surveying vessels, as it is capable of measuring a distance with great accuracy.

Sir Humphry Davy's Water Bottle

Answered the purpose for which it was intended; but it did not close, so as to prevent the water from escaping or mixing with that nearer the surface as it came up.

Kater's Altitude Instrument.

This is likely to become a valuable instrument;—it requires practice, and Mr. Bisson and Mr. Ross made great progress in it; but it was not sufficiently near the truth to be depended on for working the time; the general opinion was, that it was on too small a scale.

DipSector.

This valuable instrument was used when on our passage out and home; but during the time we were in Baffin's Bay, its use was suspended by the great inequality of refraction on the horizon.

Dip Micrometer.

This instrument was not used.

Electrical Apparatus.

This apparatus being intended to be used when the ship was frozen up, or stationary, did not come into use, there having been no opportunity fit for the purpose during the whole voyage.

Sympeisometer.

This instrument acts as a marine barometer, and is certainly not inferior in its powers; it has also the advantages of not being affected by the ship's motion, and of taking up very little room in the cabin. I am of opinion, that this instrument will supersede the marine barometer when it is better known.

The other instruments of this nature require no reports being made on them.

Hydrometer

Was commonly used in obtaining the specific gravity of the water.

The Sector and Micrometer

Were used whenever it was possible, and the observations noted; but it was seldom the horizon could be found sufficiently clear when amongthe ice, and afterwards the ship had too much motion.

Baines' Log.

This machine, owing to some defect in the workmanship, soon wore out by friction in the spiral wheel; it was afterwards repaired, but could not be shipped until our return to Shetland, when it was again set a going, and completely answered its purpose.

Jennings's Log and Glass.

These instruments were very superior, and if generally used would save expense.

Burt's Buoy and Knippers.

The invention appears to be very perfect, but owing to the water being generally above 150 fathoms, we had little opportunity of using it.

Lieutenant Cawley's Boat.

This boat is on an excellent plan, and had we been employed surveying the coast, would have been useful in that respect, as well as the principal one, that of saving our lives if driven to the boats. Al-

though we fortunately never had occasion to use her, it cannot be denied, that the reflection, in many instances where the ships were exposed to danger, that such a resource was at hand, could not fail to produce the best effects; and when it was necessary to stow men and provisions for a considerable time in a small compass, this boat possessed many advantages.

Mr. Plentty's Cork Life Boat.

This meritorious invention was in like manner of great service, for it evidently possessed the quality of sustaining the shock of striking on a rock or ice without being in any way damaged; and, therefore, in case of shipwreck would have easily saved the lives of the crew.

JOHN ROSS, Captain.

DEEP SEA CLAMMS,

INVENTED BY CAPTAIN J. ROSS, R. N.

THIS instrument was invented by me, on board His Majesty's ship Isabella, in the early part of our voyage to the Arctic Regions; many fruitless attempts had been made to procure substances from the bottom of the sea in deep water, by the instruments with which we were supplied; and I had an opportunity of observing the reasons of this failure, which led to the discovery of that which I am about to describe; and which, in almost every instance, completely succeeded in accomplishing that desirable object, of bringing up substances of any description, in considerable quantity, from any depth; but it has also been found to preserve the temperature of these substances, if they are soft, until it can be measured by the thermometer; and by these means the temperature of the earth can be nearly ascertained at any fathomable depth. In Melville Bay, on the 1st of August, it brought up, from four hundred and twenty fathoms, some soft mud, into which the thermometer was immediately immersed, and it gave 29½°; at the same time the self-registering thermometer, at the depth of two hundred and ten fathoms, gave the same temperature. In Prince Regent's Bay, in four hundred and fifty-five fathoms, it gave the same temperature. In the

entrance of Lancaster Sound, at the depth of six hundred and seventy-four fathoms, the temperature of the mud was also found to be 29½°; and, at the highest part of that inlet in which we sounded, the mud was found to be, in six hundred and fifty fathoms, 29°.

On the 6th of September, in latitude 72° 23′ N. and longitude 73° 07½′ west, we sounded in one thousand and fifty fathoms, from which depth the instrument brought up six pounds of very soft mud; the next day being quite calm, we tried the temperature of the sea at five, six, seven, eight hundred, and a thousand fathoms; and found its temperature decrease from thirty-five gradually to the same temperature as the instrument gave it, which was twenty-eight three-quarters; although the instrument may not bring up the mud at the exact temperature of that at the bottom, it may be supposed that it cannot have suffered much alteration from its agreeing so nearly with the self-registering thermometer, and that, if it has altered, it must be to increase the degree of temperature; hence it may always be inferred, that the mud at the bottom is not of a higher temperature than that brought up by the instrument. The reasons for so little alteration taking place, is the closeness with which the instrument confines the mud, which is such as not to allow even the water to escape. If the instrument strikes among stones, which are small enough to get between the forceps, it will bring up as many as are enclosed in them; in one instance it brought up a stone which weighed two pounds and a half, from three hundred fathoms; and in another, it struck a rock and cut a piece out, which it brought up from two hundred and sixteen fathoms. The instrument was made from the model by the ship's armourer, and succeeded on the first trial.

To use the deep sea clamms, it is necessary to be provided with whale lines, such as are used by the Greenland and South Sea ships, which are two and a half inches in circumference, made of the best hemp, and very pliable and easily coiled; the lines ought to be spliced together, and faked or coiled so as to run quite clear on the fore part of the ship's decks. In very deep water, it is necessary that it should be calm or nearly so, to be certain that soundings are obtained in 500 fathoms; but, in a light breeze, the instrument may be hung to a boat and towed in the direction of the ship's drift, and if there is any wind it is best to lower all the sails down. An out-rigger, fitted with a block, should be fixed on the weather-quarter, through which the line ought to be rove and bent to the instrument, when it ought to be lowered until it is a fathom below the surface, and then let go; the instruments and lines may, however, be made for different depths, and used accordingly; for the North Sea, I would recommend one of fifty pounds. The following are the dimensions and description of the first that was made:—

DESCRIPTION *of a* MACHINE *for taking up Soundings from the Bottom of any Fathomable Depth; invented by Captain* JOHN ROSS, *His Majesty's Ship* ISABELLA, *and called by him,* A DEEP SEA CLAMM.

AB. A hollow parallelogram of cast iron (1 cwt), eighteen inches long, six by six, and three-quarter inches in the outside square, and in the inside four by five inches wide.

C. Is a view of the top, and a strap of iron across it, through which the spindle passes, and two inches below another strap of the same kind is placed.

D. Diagonal view of the forceps which are attached by a joint to the spindle, and which are kept extended by the joint bolt, No. 2.

The cast-iron weight is, by the forceps being thus extended, kept up until the bolt touches the ground; the joint bolts No. 2, are then detached by No. 3, and the cast-iron weight slips down the spindle to which the rope is fixed, and shuts the forceps, which are by this time on the ground, by the power of the inclined plane enclosing and keeping fast the contents until taken out.

JOHN ROSS, Captain,
H. M. S. Isabella.

BOTANICAL APPENDIX,

BY

ROBERT BROWN, F.R.S.

For the following List of Plants, I am indebted to the kindness of Robert Brown, Esq., Librarian to Sir Joseph Banks, to whom the Admiralty very judiciously directed the specimens of Botany, collected by the different officers of the expedition, to be sent.

LIST OF PLANTS,

COLLECTED ON THE COASTS OF BAFFIN'S BAY,

From Lat. 70° 30′ *to* 76° 12′, *on the East Side;*

AND

AT POSSESSION BAY, *in Lat.* 73°, *on the West Side.*

The List is formed chiefly from Capt. Ross's collection; a considerable number of additional species to which (S.) is annexed, were collected by Capt. Edward Sabine; and a few marked (F.) were received from Mr. Fisher, the Surgeon of the Alexander.

Triandria.

Eriophorum polystachion, *Linn.*

Alopecurus alpinus, *Smith, Flor. Brit.* iii. p. 1386.

Agrostis algida, *Phipps's Voy.* p. 200. *Wahlenb. Lapp.* p. 25. t. i. (S.) Gramen sui generis.

Agrostis paradoxa, *nov. sp.* Vix hujus, forsan proprii generis.

Poa laxa, *Willden. Sp. Pl.* i. p. 386.

Hexandria.

Rumex digynus, *L.* Distinctum genus (Donia *nob.*) efformat.

Decandria.

Andromeda tetragona, *L.*

Pyrola rotundifolia, *L.?* Absque floribus haud determinanda.

Saxifraga oppositifolia, *L.*

——— propinqua, *nov. sp.* S. Hirculo cui proximâ minor et diversa præsertim calycibus nudis et petalis inappendiculatis.

——— flagellaris, *Sternberg Saxifr.* p. 25. t. 6. S. setigera, *Pursh. Amer.* i. p. 312. (F.)

——— tricuspidata, *Willden. Sp. Pl.* ii. p. 657. (S.)

——— cæspitosa, *L.* Notis nonnullis differt, forsan distincta.

——— petiolaris, *nov. sp.* proxima S. rivulari. (S.)

——— cernua, *L.*

Silene acaulis, *L.*

Lychnis apetala, *L.*

——— triflora, *nov. sp.* (S.)

Cerastium alpinum, *L.*

Icosandria.

Potentilla pulchella, *nov. sp.* P. sericeæ affinis. (S.)

——— grœnlandica, *nov. sp.?* nimis affinis P. frigidæ et Braunianæ. (S.)

Dryas integrifolia, *Vahl in Flor. Dan.* 1216.

Polyandria.

Papaver nudicaule, *L.*

Ranunculus ———, sulphureus forte vel glacialis; e fragmentis non determinanda. (F.)

Didynamia.

Pedicularis hirsuta, *L.*

TETRADYNAMIA.

Draba muricella, *Wahlenb. Lapp.* p. 174. t. xi. f. 2.? (S.)

——— oblongata, *nov. sp.* (S.)

——— corymbosa, *nov. sp.?* præcedenti valde affinis et ambæ D. rupestri (*Hort. Kew.* iv. p. 91.) proximæ. (S.)

Cochlearia fenestrata, *nov. sp.* A. C. anglica et danica, quibus valde propinqua, differt valvulis subaveniis et dissepimenti elliptico-lanceolati axi dehiscente.

SYNGENESIA.

Leontodon Taraxacum, *L.?* varietas nana? vix species distincta.

MONŒCIA.

Carex compacta, *nov. sp.* C. pullæ affinis. (F.)

DIŒCIA.

Empetrum nigrum, *L.*

Salix arctica, *nov. sp.*

—— ——— specimen mancum dubiæ species, præcedenti proximæ.

POLYGAMIA.

Hierochloe alpina, *Br.* Holcus alpinus, *Wahlenb. Lapp.* p. 51. (S.)

CRYPTOGAMIA.

Lycopodium Selago, *L.* (S.).

Polytrichum juniperinum, *Hooker and Taylor, Musc. Brit.* p. 25.

Orthotrichum cupulatum, *Musc. Brit.* p. 72.?

Trichostomum lanuginosum, *Musc. Brit.* p. 60.

Dicranum scoparium, *Musc. Brit.* p. 57.
Mnium turgidum, *Wahlenb. Lapp.* p. 351.
Bryum ———, absque capsulis.
Hypnum aduncum, *L.*
Jungermannia ———, fructificatione nulla.
Gyrophora hirsuta, *Achar. Syn.* p. 69. (S.?)
——— erosa, *Achar, Syn.* p. 65. (S.)
Cetraria islandica, *Achar. Syn.* p. 229.
——— nivalis, *Achar. Syn.* p. 228.
Cenomyce rangiferina, *Achar. Syn.* p. 277.
——— fimbriata, *Achar. Syn.* p. 254.?
Dufurea? rugosa, *nov. sp.*
Cornicularia bicolor, *Achar. Syn.* p. 301.
Usnea? ———, *nov. sp.?* absque scutellis.
Ulva crispa. *Lightf. Scot.* 972.?

Algarum genus?? Confervis simplicissimis et Tremellæ cruentæ (*Eng. Bot.* 1800) quodammodo affine?? Minute globules, the colouring matter of the Red Snow, of which extensive patches were seen in Lat. 76° 25′ N., and Long. 65° W.

THE END.

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ERRATA.

Page 29, marginal note, *for* latitude 38° 36′ *read* latitude 58° 36′.
Page 45, line 25, *for* latitude 63° *read* 68°.
Page 109, note at the bottom, *for* Krantz's Egede *read* Krantz's Greenland.
Page 156, line 12, *for* 86° 25′ *read* 86° 05′.
Page 241, art. 11, line 2, *for* lost *read* last seen.
Page 243, line 9, *for* Rifle Bay *read* Lifle Bay.

EXPLANATION.

These Diagrams exhibit the Ranges of the Marine Barometer, & Sympiezometer and the Temperature of the Air, and Water at the Surface, by Farenheights's Thermometer, on board H.M.S. Isabella during the Voyage of Discovery to the Arctic Regions performed in the months of May, June, July, August, September, and October. The uppermost dotted line ..... representing the Barometer, the 2d ..... the Sympiezometer, the 3d ..... the temperature of the Air the 4th ..... the temperature of the Water at the Surface of the Sea ____ Below is inserted the State of the Atmosphere by Kater's Hygrometer. Also the Latitude & Longitude at Noon, Winds and Variation, and when the temperature of the Water & Soundings are taken, they are inserted in the Column of the Day The whole of the Meteorological Observations are carefully abstracted from the Meteorological Log. The Latitudes and Longitudes are the Observations by different Officers and their means, as near as taken. The Variation is corrected for Deviation. The Table shewing the Magnetic Dip and Intensity of the Magnetic Force, was furnished by Mr James Ross, who with Captain Sabine, was employed particularly to make those Observations.

OBSERVATIONS ON THE DIP AND INTENSITY OF THE MAGNETIC FORCE.

Month.	Date.	Latitude.	Longitude.	Dip.	N° of Observations	In the Mag. Merd. 100 Vibrations in	N° of Observations	Right angles to the Mag. Merd. 100 Vib.s in	N° of Observations	REMARKS.
		North.	West	North.		m. s.		m. s.		
April	30th	Brassa in	Shetland.	74 . 22 . 48	14	7 . 50 . 15	4	6 . 02 . 25	4	
June	9	68 . 22 . 15	53 . 49 . 55	83 . 08 . 42	12	7 . 30 . _	2	7 . 33 . _	1	On Ice in Davis Straits East Coast Distant 5 miles
____	19	70 . 26 . 17	54 . 51 . 49	82 . 40 . 47	14	7 . 23 . _	2	7 . 26 . _	1	Waygate Islands at the Observatory
July	8	74 . 04 . 00	57 . 52 . 00	84 . 09 . 15	10	----------	--	----------	--	On the 3 Islands of Baffin.
____	23	75 . 15 . 00	60 . 30 . 00	84 . 25 . 06	10	7 . 27 . 25	2	7 . 26 . _	1	On Ice the Land dist.t 10 miles.
August	2	75 . 51 . 30	63 . 60 . 00	84 . 14 . 33	10	7 . 27 . 25	2	7 . 24 . 50	1	D.o .. D.o .... 8 miles.
____	4	75 . 59 . 00	64 . 47 . 00	84 . 52 . 06	10	----------	---	----------	---	D.o .... D.o .... 8 miles.
____	19	76 . 32 . 00	73 . 45 . 00	85 . 44 . 38	11	--	---	---	---	On Ice Carys Islands bearing NNE. 15 miles
____	20	76 . 45 . 30	76 . 00 . 00	86 . 09 . 33	12	7 . 15 . _	2	7 . 16 . _	1	On Ice Cape Clarence bearing West 7 Leagues
____	25	76 . 08 . 28	78 . 20 . 30	85 . 59 . 19	16	7 . 16 . _	2	7 . 18 . _	1	On Ice Land 7 miles Dist.t
September	11	70 . 35 . 30	66 . 55 . 0	84 . 39 . 21	10	7 . 16 . _	2	7 . 18 . 05	1	D.o Land 12 miles Dist.t
November	3	Brassa in	Shetland.	74 . 21 . 50		----------	---	----------	---	

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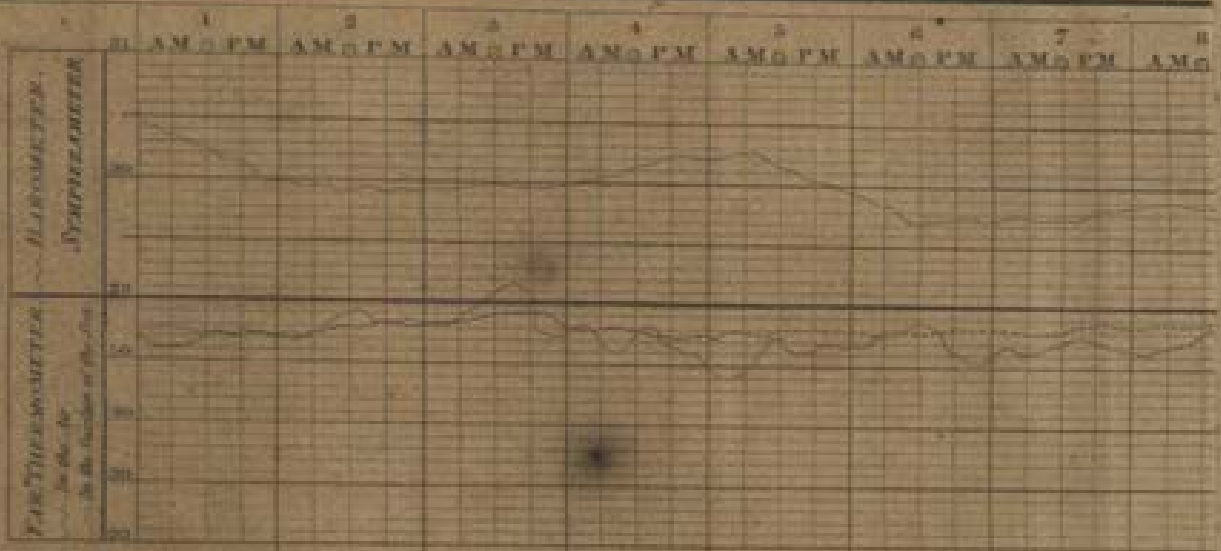
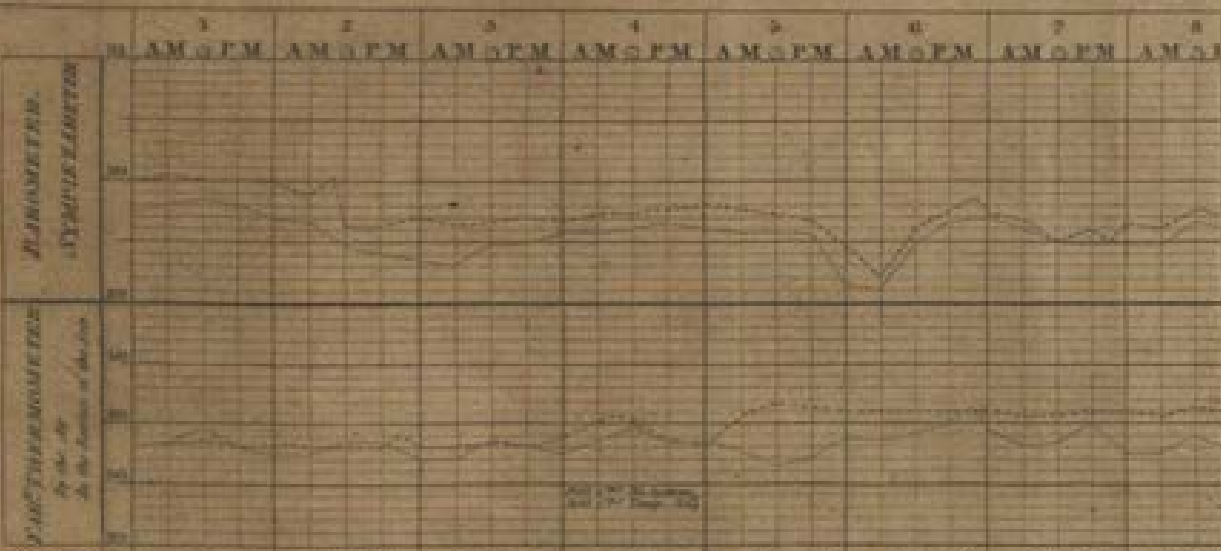
MAY

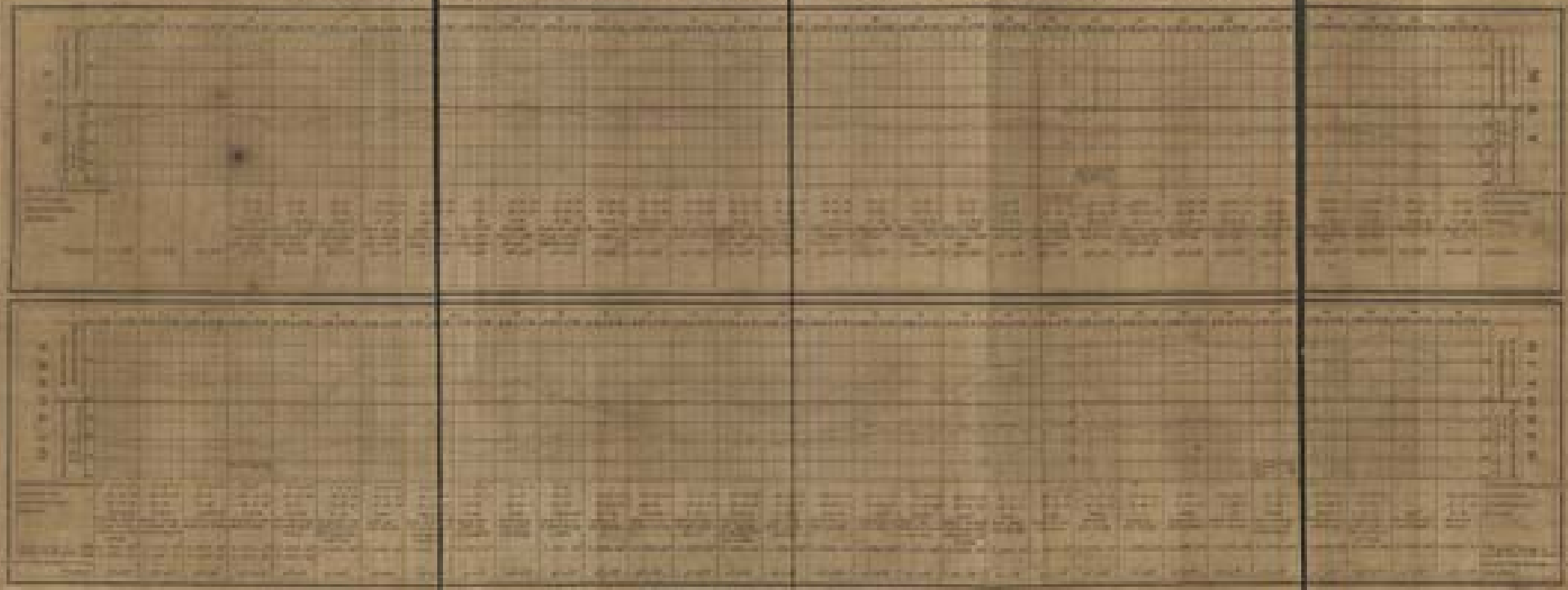


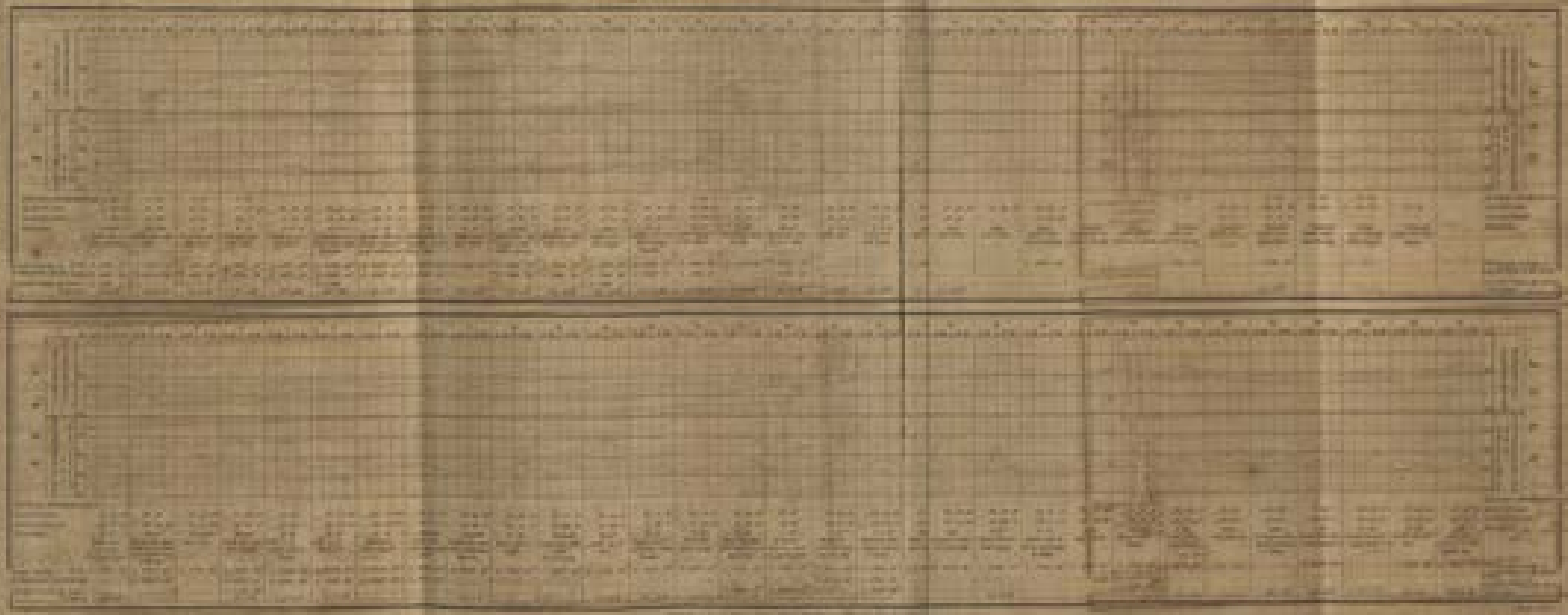
	1 AM ○ PM	2 AM ○ PM	3 AM ○ PM	4 AM ○ PM	5 AM ○ PM	6 AM ○ PM	7 AM ○ PM	8 AM ○
Extent Hygrometer								
Latitude				49°.24 .	49.30 .	49.32 .	49.43.45	49.5
Longitude				4°.33 .	3°.34 .	3°.42 .	1°.31.0	1°.2
Winds				S.by W. Fresh breeze and Cloudy P.M. Rainy	S.by W.a. W.S.W. Cloudy and hazy N. P.M. D°.N.	S.W.b.W. Light airs & fine Weather P.M. D°.N.	S.E. Fresh breeze and Cloudy P.M. D°.W.	East Light a P.M. Wind Cloudy a
Variation	25°.00 W.	25°.00 W.	25°.00 W.	25°.00 W.	24°.00 W.	24°.00 W.	24°.00 W.	25°.0

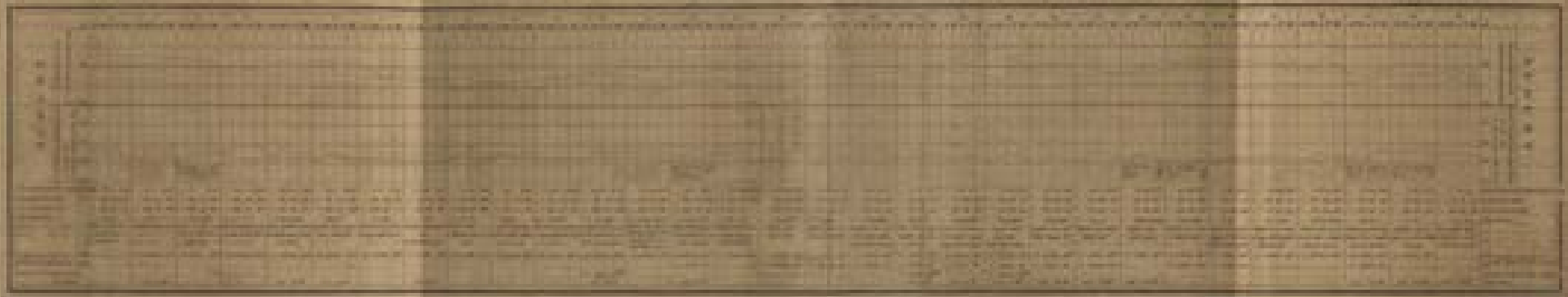
OCTOBER

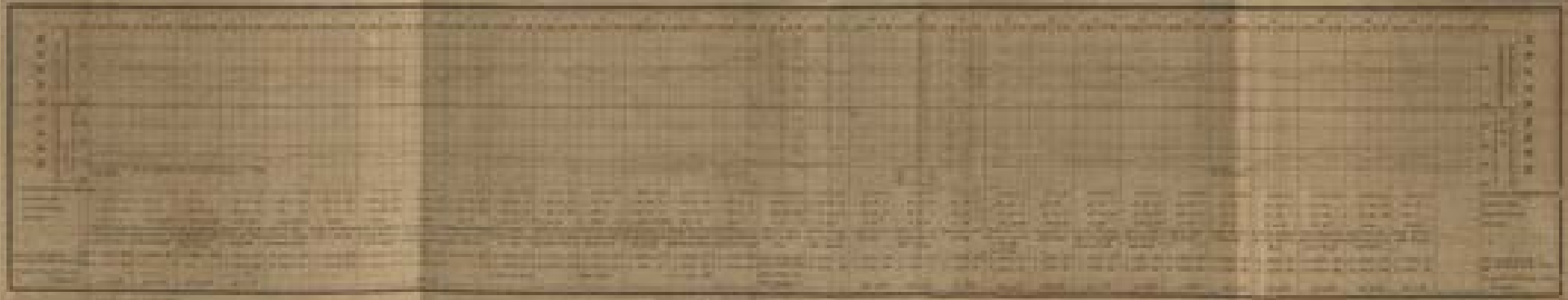


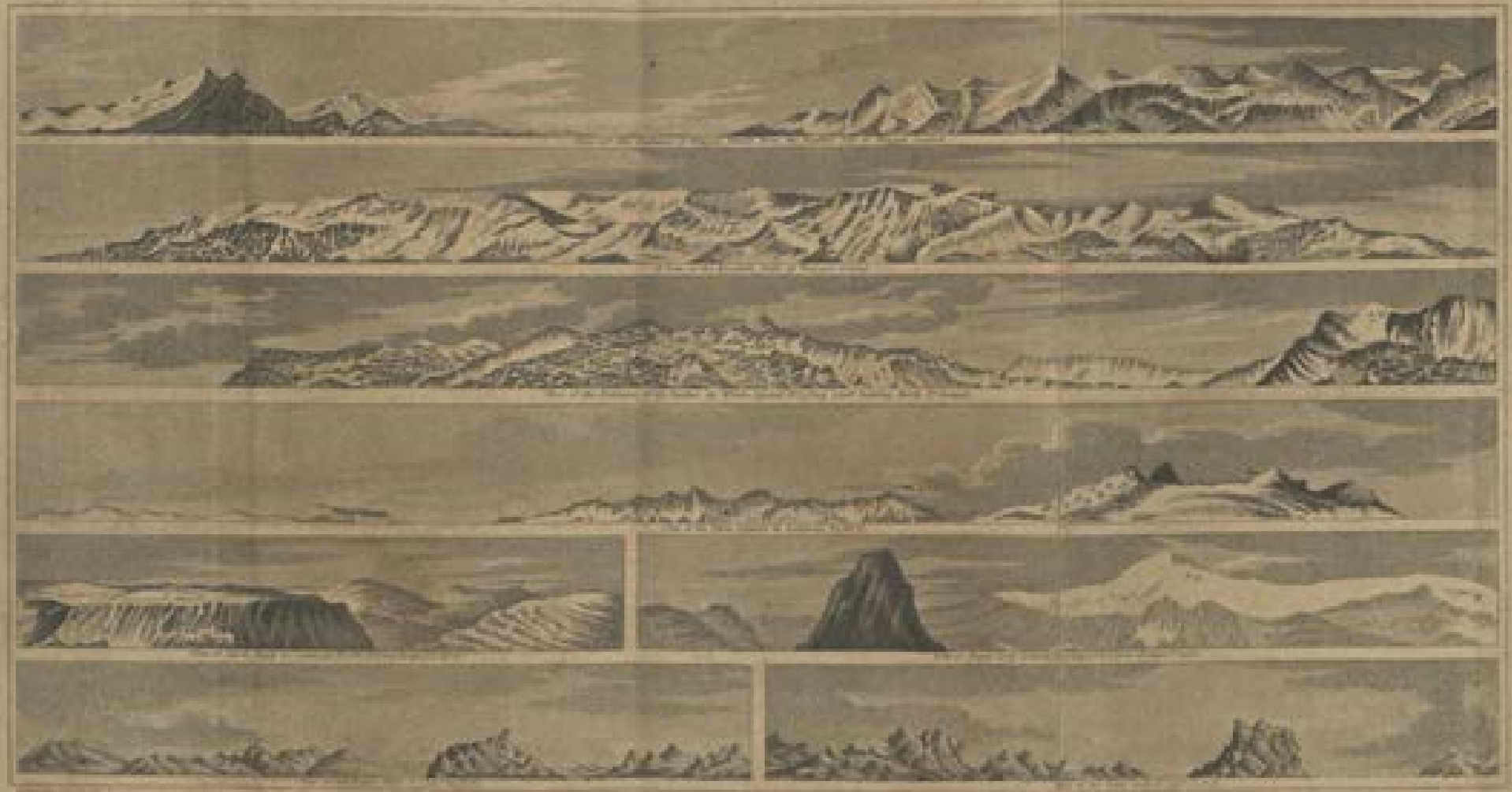
	1 AM ○ PM	2 AM ○ PM	3 AM ○ PM	4 AM ○ PM	5 AM ○ PM	6 AM ○ PM	7 AM ○ PM	8 AM ○
Extent Hygrometer	2.3 to 4.3	2.3 to 7.0	4.3 to 4.3	5 to 7	3.3 to 3.3	3 to 4.4	3.3 to 4.3	4 to 5
Latitude	49.51.40	49.49.49	49.48 .	49.46.32	49.53.38	49.57.48	49.49.30	49.49 .
Longitude	49.51.30	49.51 .	49.56 .	49.7.30	50.0° .	50.22.0	50.42.30	50.53 .
Winds	N.E. fresh P.M. N.W. Light breezes & clear, Mist' clouds and Cloudy	N. West Fresh & Cloudy P.M. Light airs & hazy evening W.	from W.N.W. to E.N.E. Light breezes & Cloudy	N.N.W. Moderate with Rain & Snow	N.N.W. Mist' with Rain at 4 P.M. Rain Showers	N. E. Strong Gales and Squalls P.M. Mod.' Mist' Light rain with Snow	East Light rain and Cloudy	Vble. a.M. North Strong Bre and Squa with Sno
Specific Gravity of the Water at the Surface AM	1.0253.45	1.0253.48	1.0260.48	1.0270.48	1.0267.50	1.0270.48	1.0273.51	1.0273 .
Specific Gravity of the Water at the Surface PM	1.0255.51	1.0264.45	1.0264.45	1.0267.48	1.0266.48			
Variation	25°.00 W.	25°.00 W.	25°.00 W.	25°.00 W.	25°.00 W.	25°.00 W.	25°.00 W.	25°.00











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